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Pennsylvania

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UNIVERSITY CALENDAR

1953

June 29-July 3 ..... Registration for Summer Session
July 4 ..... Independence Day — Holiday
July 6 ..... Summer Session begins—Undergraduate and Graduate
July 31 ..... Feast of St. Ignatius — Holiday
August 15 ..... Feast of the Assumption — Holiday
August 28 ..... Summer Session ends
September 17 ..... Registration for Freshmen
September 18 ..... Registration for Upperclassmen
September 21 ..... First Semester begins—Day, Evening and Graduate Sessions
October 1 ..... Mass of the Holy Ghost
October 6 ..... Student Convocation
October 7, 8, 9 ..... Annual Student Retreat
November 13 ..... End of First Quarter
November 26, 27, 28 .. Thanksgiving Holidays
December 8 ..... Feast of the Immaculate Conception — Holiday
December 11 ..... Scheduling day for Second Semester
December 19 ..... Christmas Holidays begin (after last class)

1954

January 4 ..... Classes resume
January 23 ..... End of Second Quarter
January 25-29 ..... Semester Examinations
January 29 ..... End of Day, Evening and Graduate Sessions
February 1-6 ..... Semester Vacation
February 8 ..... Second Semester begins—Day, Evening and Graduate Sessions
February 22 ..... Washington's Birthday — Holiday
April 2 ..... End of Third Quarter
April 13 ..... Easter Holidays begin (after last class)
April 21 ..... Classes resume
April 22-23 ..... Graduate Record Examinations
April 23 ..... Last Day to submit Graduate Thesis
May 5 ..... President's Day. Holiday
May 24-28 ..... Senior Examinations
May 27 ..... Ascension Thursday — Holiday
May 28 ..... End of Fourth Quarter
May 31-June 4 ..... Semester Examinations
June 4 ..... All Sessions close
June 4 ..... Alumni Induction
June 5 ..... Baccalaureate—Class Day Exercises
June 6 ..... Commencement

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General Information

HISTORY

The University of Scranton, the first Catholic institution of higher education in the Northeastern counties of Pennsylvania, was known as the College of Saint Thomas at its foundation in 1888. Under the laws of the State it was chartered on January 12, 1924, to confer Bachelor's and Master's degrees in the Arts and Sciences. Fourteen years later Saint Thomas College became the University of Scranton. In 1942 the University of Scranton became the twenty-fourth of the twenty-seven colleges and universities in the United States under the direction of the Society of Jesus.

LOCATION

One division of the University, comprising three buildings, is situated on Wyoming Avenue near the center of the city. In the main building are located the offices of administration, the library, the auditorium and the biology department. A separate building houses the chemistry laboratories and lecture rooms. La Salle Hall contains the offices of the President and the Public Relations Office. The other division of the University, adjoining the Scranton Estate, consists of the Liberal Arts building, the Business Administration building and the Physical Science building. The site of the Business Administration building was donated by Attorney M. J. Martin, regent and legal adviser of the University. The Scranton Estate, the generous gift of Mr. Worthington Scranton, comprises about five acres of land and a large mansion, which now serves as a residence for the Jesuit faculty. On May 18, 1945, the University acquired title to a tract of eight and a half acres, the gift of Mr. E. P. Dietrick.

THE OBJECT AND PURPOSES OF THE UNIVERSITY

The University of Scranton, though a recent member of the international family of Jesuit Colleges and Universities, is old in the tradition and experience of educational values. The educational philosophy of the University of Scranton is that of the *Ratio Studiorum*, whose basic principles and methods were first

codified in 1599, thoroughly revised on the basis of experience in 1832 and constantly modified on the same grounds from time to time to meet the changing needs of sound education.

The general objective and purpose of the Jesuit College of liberal arts is the imparting of a liberal education to its students.

This end will be attained by training in the humanities, philosophy and religion, together with such other disciplines in the social, physical and biological sciences as tend to make the well-educated man.

In its pre-professional training, it still keeps in mind its main purpose, a liberal education. Consequently, in this training it will always aim at imparting a broad education including humanities, philosophy and religion, as well as the sciences, business and professional and vocational courses.

The Jesuit College has a hierarchy of values. The humane and the spiritual are more important than the material; at the summit of the hierarchy are the supernatural values, those known through Revelation.

Religion, which does not consist merely in instruction in Christian Doctrine but in the active living of one's life according to Christian Principles, is the basis of Jesuit education and, as such, will permeate all curricular and extra-curricular activities of the College.

Although its purpose as a college is the training in the intellectual virtues, with a fund of necessary and balanced knowledge, the Jesuit College, as a Catholic college, regards as of paramount importance the moral and religious growth of its students. To this end the Catholic tone of the college will always be manifest so that our students, as stated in the *Ratio Studiorum*, "may advance in uprightness of life as well as in the liberal arts."

The University of Scranton as a liberal arts college which serves primarily the needs of the community and the area recognizes as some of its specific objectives the following:

To train those who will render special professional service to the public and private schools of the community and the area.

To prepare those who plan to enter Catholic theological seminaries.

To educate those who will enter the professional, civic and business world of the community.

To offer those who plan to enter the field of research and graduate study the necessary undergraduate training.

RELIGIOUS TRAINING

No matter how solid and thorough the intellectual training of the student it needs to be supplemented by an equally complete training in religion and morality if education is to fulfill adequately its function of perfecting human nature and thus preparing the student for a fruitful life after leaving college. The more highly trained a man is, the greater his potentialities for good or evil; and consequently the more important the role of religion with its incomparable power to instruct the conscience and to strengthen the will in the ways of private, social and civic virtue.

One of the phases of religious training at the University consists in formal instruction, given during class periods, as an integral part of the curriculum. Since religious truths form a body of doctrine that can be taught and studied as exactly and scientifically as other branches of human knowledge, the courses in religion are conducted as regular lecture courses with recitations and examinations. The courses are so distributed over the four years of college that the entire field of Christian dogma and morals is adequately surveyed.

In addition to the courses in religion, obligatory for all Catholic students, the growth of a spirit of manly piety is encouraged by voluntary participation in various religious devotions and practices. Holy Mass is celebrated in the Chapel; Benediction of the Blessed Sacrament, Devotions to the Sacred Heart and to Our Blessed Lady and other liturgical functions are held at frequent intervals. All Catholic students are expected to receive the Sacraments frequently, weekly and even daily when possible, and to make the exercises of a three day retreat which is held annually.

In the admission of students no discrimination is made on the grounds of religious belief. Students, not of the Catholic faith, are exempted from attending classes in religion and from participating in religious exercises conducted by the University, though they may attend them if they so desire.

STUDENT COUNSELING

To foster the religious development of the students, two of the Fathers of the Faculty are appointed as counselors or advisers of the students. They are in a special sense the friend and adviser of the students not only in religious matters but also in their social duties and in other personal matters as each one may desire.

One of the questions of highest importance to every college graduate is the wise choice of a profession or vocation according to one's character, talents and inclinations, both natural and supernatural. No student with a serious outlook on life will fail to determine well in advance of his graduation the career which under God's providence seems best suited to assure him success and happiness. In this matter the assistance of the Student Counselors will prove of great value.

THE ADVISORY SYSTEM

In accordance with its policies of keeping the relations of students and faculty on a personal basis the University has organized an extensive advisory system. In accordance with the system ample opportunity is afforded the student for academic counseling. a testing program and conferences with the Committees on Scholarship.

VOCATIONAL GUIDANCE CENTER

The University of Scranton has established a Guidance Center whose offices are located in a separate building at 3 Platt Place. Several well-trained Counselors serve in the testing bureau and devote themselves to counseling the students in their academic and occupational pursuits.

FRESHMAN WEEK

At the beginning of each academic year a special program, known as Freshman Week, is conducted by the University for the purpose of introducing the new students to their studies and college life. During this period each Freshman is required to take a series of aptitude and placement tests in order to enable him and his faculty adviser to select a course of studies in which the student can best achieve his goal. A series of instructions on the

use of the Library, several lectures on study habits and an introduction to the various extracurricular activities are included in the Freshman Week program.

THE LIBRARY

The Library of the University of Scranton serves the students and the faculty in instructional matters and in research through the existing collection of the main library, located on Wyoming Avenue, and a special collection including many spiritual works housed at the Scranton Estate, 4 Ridge Row. Books from this special collection are available through loan at the main library.

Students have access also to the Scranton Public Library, the Law Library at the Court House and other libraries in the vicinity. Out-of-town students wishing to make use of these resources should consult the University Librarian.

The staff of well trained Librarians is prepared to give individual and informal instruction, so that any student with a special research problem may receive efficient service. Formal instruction, including several lectures and a problem on the use of the Library, is made a part of the English course given to all Freshmen. These lectures are conducted by the Librarians. It is highly recommended that the students should be aware of the educational and cultural value derived from a thorough acquaintance with the Library collection and tools.

The main Library, located on the third floor of the Main Building, is open daily during the week from 8:30 a.m. to 9:45 p.m., and on Saturdays from 9:00 a.m. to 5:00 p.m., exclusive of Sundays and holidays. All alumni and friends of the University of Scranton are welcome to use the Library for reference and to borrow books.

BEST SELLERS

The Library of the University of Scranton edits and publishes *Best Sellers*, one of the largest book-reviewing services in the country. The purpose of this review is to assist individuals as well as libraries in making an intelligent selection of modern literature. The Reviewing Staff is composed of experts in the various fields of writing and is drawn from more than thirty colleges and universities in the country.

OUT-OF-TOWN STUDENTS

Although the University of Scranton is not a boarding school and, therefore, provides no dormitory accommodations on the campus, a number of private homes, furnishing board and lodging, are available in the main residential district a few minutes walk from the University. Students are required to board in homes on the approved list of the University. Room and board can be secured for rates varying between $60.00 and $75.00 per month. Room rates only average about $5.00 a week. A list of approved homes may be secured by writing to the Registrar.

INSTITUTE OF INDUSTRIAL RELATIONS

On October 19, 1943, in Hazleton, Pa., the University of Scranton opened the first unit of its Institute of Industrial Relations. It was called Hazleton Labor College. Since then two other divisions have been added to the Institute, viz.: the Shenandoah Institute of Industrial Relations in Shenandoah, Pa., which was inaugurated on March 15, 1945; and the Scranton Institute of Industrial Relations, which held its first assembly on May 2, 1945.

It is the purpose of all of the divisions of the Institute to provide opportunity for both employees and employers to acquire a sound philosophy in industrial relations, an acquaintance with the methodology of Social Science, a knowledge of the provisions of labor legislation and skill in written and vocal expression. It is hoped that by spreading a better understanding of the underlying principals and factual data of industrial relations the groundwork will be laid for enduring industrial peace.

The instruction is conducted each year through two semesters of ten weeks each. The classes meet for three periods on one evening each week.

Lecturers include members of the regular faculty of the University and specially engaged experts in specific fields. The regular courses are supplemented by occasional lectures by members of the staffs of various departments of the Federal Government, of the Commonwealth of Pennsylvania and of labor and employer organizations.

The student body includes international and district officers and board members of labor organizations, officials and committee members and rank and file members of locals; foremen, superintendents, personnel directors and professional persons.

RESERVE OFFICERS TRAINING CORPS

The Department of the Army approved the establishment at the University of Scranton of an Ordnance Corps Unit of the Reserve Officers Training Corps in September, 1951. It consists of a four-year program with basic courses in the first two years and advanced courses in the last two years. The primary objective of the R.O.T.C. system of education is to qualify selected students to be commissioned reserve officers in the Army of the United States. All physically qualified Freshmen are required to enroll in the basic course. Enrollment in the advanced course is optional. Two credits per semester toward a degree are allowed for basic training and three credits per semester are allowed in the advanced courses. Full particulars concerning the program will be furnished by the Professor of Military Science and Tactics.

PLACEMENT BUREAU

The Placement Bureau was established to render service to all University of Scranton students and alumni who register with the Bureau. Undergraduates and alumni registrants are given every possible assistance in finding satisfactory employment. From time to time, especially during the spring term, employment officers of large corporations arrange through the Placement Bureau to come to the University to interview Seniors with regard to prospective positions with their organizations.

RADIO STATION WUSV

The University of Scranton operates its own non-commercial educational FM broadcast station, WUSV, located in the radio studios of WQAN in the Scranton Times Building. The radio station broadcasts a three and one-half hour program daily.

The technical and production details incident to the operation of a typical radio station are handled by the students under faculty direction.

General Regulations

Students obviously enter the University with the sincere and earnest purpose of obtaining all the benefits of a college education. To enable them to do so, to secure the order necessary for the effectual pursuit of studies, to develop and strengthen character and to promote gentlemanly deportment and polite manners, the University has drawn up certain rules and regulations governing student life. While the observance of these regulations is largely a matter of student morale, they are enforced unflinchingly whenever necessary. Matters of discipline are supervised by the Dean of Men.

While the University cannot be held responsible for the conduct of students outside the premises, nevertheless unbecoming conduct either on or off the campus, as well as insubordination, continued inapplication to studies or irregularity in attendance, will constitute grounds for dismissal from the University. In general both within and outside the University students are expected to manifest the respect for order, morality, personal honor and the rights of others, which is the hallmark of a gentleman and the duty of a good citizen. The Administration reserves the right to dismiss a student at any time without any definite charge, if in its opinion he fails to use profitably the opportunities offered him at the University or to conduct himself according to its standards.

ATTENDANCE

The University considers regular attendance at all classes one of the most important obligations of the student. Every student is required to attend all the scheduled exercises of his class. A limited number of absences for grave and legitimate reasons is permitted. Should a student be absent more frequently than double the number of credits in a given course he incurs an automatic failure. Each student should keep an account of his absences. Failure to do so will not excuse him from the above penalties. Whenever a student has been unavoidably absent for a prolonged period because of illness or an equally compelling reason the application of this rule may be modified upon the recommendation of the instructor with the approval of the department head. Not only

must attendance at classes be regular but it must be punctual. Late comers are not to be admitted and will be recorded with an absence. With the approval of the department head make-up tests may be given during the term but they may not be marked on a basis higher than a maximum grade of 75%.

EXAMINATIONS AND GRADES

Grades are ascertained quarterly from the professors. Twice each semester a mark is given in each course made up on the basis of the student's homework, recitation in class and tests.

At the close of each semester comprehensive written examinations in each subject are held covering all the matter studied during the semester; supplementary oral examinations may also be required. To be eligible to take a semester examination, a student must have attained an average of "D" in the combination of the two quarterly marks and must not have exceeded the limit of absences. Unexcused absence from a semester examination counts as a condition.

The semester's average is obtained by adding together the marks for the two quarters and the mark for the semester examination, and dividing by three. To secure credit for a subject not only the semester average but also the mark in the examination must be at least "D".

The system of grading in use is based on the letters A, B, C, D, E, F. These letters are evaluated according to the following scale:

A—93-100—Excellent .....3 quality points for each credit hour
B—85- 92—Good .....2 quality points for each credit hour
C—77- 84—Fair .....1 quality point for each credit hour
D—70- 76—Passing .....0 quality point for each credit hour
E—60- 69—Condition
F—Below 60—Failure
WD—Withdrawal from Course

QUALITY OF WORK

A grade average of "C", or a quality point index of 1.0 is required for graduation.

The quality index of a student is determined by dividing the total number of quality points earned by the total number of earned credits.

HONOR STUDENTS

To be eligible for honors a student must carry the full program of his class. All semester hours in which a student receives a grade are counted in the determination of honors. In order to be listed as honor students a grade of "B" or higher must be earned in each subject.

DEAN'S LIST

At the termination of each semester, the Office of the Dean of Studies publishes a list of all students who have earned academic distinction. In order to be placed on the Dean's List, a grade of not less than "B" must be earned in each course.

DEFICIENCIES

Any grade between 60 and 69 will constitute a condition. A condition is also incurred by not passing a semester examination. A student whose quarterly marks in any subject average between 60-69 percent is permitted to take a condition examination. Likewise, a student who has been debarred from the semester examination because of absences, and whose quarterly marks average 60 percent, is permitted to take a condition examination.

A condition examination will be given in each subject after the regular semester examinations. The highest mark to be attained in such examination is "D". The fee for any condition examination is $5.00. If a student fails to pass any condition examination or absents himself without permission from such an examination he automatically incurs an absolute failure.

A student whose quarterly grades in any subject average below 60 incurs an absolute failure. Such failures are removed only by repeating the subject in regular course. A course may be repeated but once.

No student will be classified as a Senior who has not removed all deficiencies or who has not earned the necessary number of quality points. Any member of the Senior Class who incurs one

failure or two conditions shall cease to be a candidate for a degree at the next commencement.

A student who has accumulated three failures at the end of a semester shall be dismissed.

INCOMPLETE COURSES

If a course has not been completed because of illness or some other serious reason, approved on the recommendation of the Committee on Academic Standards, the course will be marked "I" (Incomplete).

VOLUNTARY WITHDRAWAL

A student who withdraws voluntarily from the University is entitled to honorable dismissal if he is in good standing and has settled all his financial indebtedness. Students who intend to withdraw from the University are obliged to notify the Registrar of their intention to do so.

STUDENT EXPENSES

Unless it is explicitly stated otherwise, tuition and fees are for one semester and are payable on registration.

Deferred payments are allowed only in rare cases and must have the direct approval of the Treasurer before registration. A fee of $5.00 per semester is charged for this service. Deferred payments are made by paying $150.00 at the beginning of the semester and the balance in payments due the first of two following months.

The University reserves the right to refuse admission to classes to any student not complying with deferred payment regulations.

TUITION

Tuition per semester is $250.00. This tuition permits a student to carry the number of credit hours as indicated for his course in pages 44 to 60 of this catalog. Extra credit hours are chargeable at the rate of $15.00 per semester hour of credit. Students whose combined number of credit hours is 10 or more in any session or combination of sessions shall be charged full tuition and fees. Full time Day students who have permission to take additional work in the Evening will be charged at the rate of $15.00 per semester hour for all courses taken in the Evening Session.

REFUNDS

In the event a student discontinues training the following schedule of pro rata charges for tuition and fees will be made:

Period of Attendance	*Percentages to be Charged*		
	16-19 wks.	9-11 wks.	6-8 wks. inc.
One week or less	20%	25%	40%
Between one and two weeks	20	50	80
Between two and three weeks	40	75	100
Between three and four weeks	60	100	100
Between four and five weeks	80	100	100
Over five weeks	100	100	100

In order to obtain a refund, notice of withdrawal must be reported in writing to the Treasurer.

SPECIAL REGULATIONS

No student will be permitted to take semester examinations until all his bills for the current semester have been paid. No student shall be permitted to receive any degree, certificate or transcript of record, until his financial accounts with the University have been satisfactorily settled. Students are responsible for all breakage in the laboratories.

SUMMARY OF TUITION AND FEES

DAY SESSIONS

Tuition per semester	$250.00
Laboratory fee for each science course per semester	10.00
Accounting laboratory fee per semester	5.00
Statistics laboratory fee per semester	5.00
Registration fee per semester	5.00
Engineering laboratory fee per semester	5.00
Graduate Record Examination	7.50
American Institute of Accountants Examination	5.00
Examination material	.75
Matriculation fee (payable once)	5.00
Deferred payment fee per semester	5.00
Late registration fee	5.00
Extra courses per semester credit	15.00
Transcript of record	2.00

Condition examination fee per course	5.00
Graduation fee	30.00
Yearbook (Seniors only)	5.00
Breakage fees	(actual)
R.O.T.C. deposit fee (returnable)	15.00
Estimated cost of books, supplies, equipment per year	40.00 to 90.00

EVENING SESSIONS

Tuition per semester hour of credit	$ 15.00
Registration fee per semester	5.00
Science laboratory fee for each course per semester	10.00
Engineering laboratory fee per semester	5.00
Business laboratory fee per semester	5.00
Examination fee per semester	.75
Graduate Record Examination	7.50
American Institute of Accountants Examination	5.00
Condition examination fee per course	5.00
Philosophy Seminar per semester	25.00
Graduation fee	30.00
Yearbook (Seniors only)	5.00
Breakage fees	(actual)
Late registration fee	3.00
Deferred payment fee	5.00
Matriculation fee (payable once)	5.00
Institute of Industrial Relations	15.00
Audio-Visual Technique fee per semester	2.50
Estimated cost of books, supplies, equipment per year	40.00 to 90.00

GRADUATE SESSIONS

Tuition per semester hour of credit	$ 18.00
Registration fee	5.00
Graduate Record Examination	7.50
Examination material per semester	.75
Deferred payment fee	5.00
Late registration fee	5.00
Condition examination fee per course	5.00
Graduation fee	30.00
Library fee	5.00

Audio-Visual Aids fee per semester	5.00
Binding of Thesis	10.00
Estimated cost of books, supplies, equipment per year	40.00 to 90.00

SUMMER SESSIONS

Tuition per semester hour of credit	$ 15.00
Registration fee	5.00
Examination material	.75
Late registration fee	5.00
Condition examination fee per course	5.00
Graduation fee	30.00
Yearbook (Seniors only)	5.00
Matriculation fee, payable once	5.00
Deferred payment fee	5.00
Graduate Record Examination	7.50
American Institute of Accountants Examination	5.00
Science laboratory fee, each course	10.00
Business laboratory fee	5.00
Engineering laboratory fee	2.00
Estimated cost of books, supplies, equipment	30.00 to 50.00

REQUIREMENTS FOR ADMISSION

The administration of the requirements for admission to the University of Scranton is in the hands of the Chairman of the Board of Admissions. The executive details are administered by the Registrar, who will furnish application blanks and information to prospective candidates, parents and secondary school principals. It will be to the candidate's advantage to make formal application early in the final year of his secondary school studies. At the very latest application should be made at least two months before the start of the semester.

In the acceptance of candidates final decision rests with the Board of Admissions. Candidates are advised that in determining the admission status of an applicant the Board will consider not only the credits and mental proficiency of the candidate but also such factors as character, personality and good citizenship.

All applicants will be required to submit to a battery of tests to be used by the Board of Admissions in evaluating their mental

qualifications for the course of study for which they are applying. The scores earned in these tests and the relative standing in the applicant's high school class will be the principal factors used in determining his acceptance for admission to the University.

SCHOLASTIC CREDENTIALS

Candidates for admission to the freshman class must present: first, a certificate of graduation from a senior high school accredited by the State Department of Education of Pennsylvania or by the Association of Colleges and Secondary Schools of the Middle States; and, secondly, a detailed record of their high school work. This record must represent either sixteen units distributed over four full years, if the applicant comes from a four-year high school or twelve units if he comes from a senior high school. Each unit represents the study of a high school subject for the duration of a school year of at least thirty-six weeks, on a basis of four to five recitation periods a week. These units must cover the prescribed subjects which are listed as requirements for admission to the various curricula.

ADVANCED STANDING

The institution honors credits toward advanced standing from other colleges, provided a grade of "C" or its equivalent is presented. No one, however, will be admitted to a standing higher than that represented by a completion of the junior year. To be eligible for a degree a year of residence is required. Students entering from other institutions shall be required to make up the prescribed subjects of study in the course which they choose to pursue.

The candidate must present a letter of honorable dismissal and a certificate signed by the proper college authority, showing the subjects studied, the number of semester hours given to each subject and the grade attained. In case the character of a student's work in any subject is such as to create doubt as to the quality of that which preceded, the University explicitly reserves the right to revoke any credit assigned on credentials and to exact examination in the same subject.

UNIT REQUIREMENTS FOR ADMISSION

To enroll in any one of the several courses offered in the curriculum a total of sixteen high school units must be presented. The term, "unit," is understood to represent a course of from four to five hours weekly throughout an academic year of secondary school. Candidates for admission may submit entrance units in the following subjects:

American History	1	Italian	2
Ancient History	1	Spanish	2
Mediaeval History	1	Algebra	2
Modern History	1	Commercial Mathematics	1
Civics	1	Plane Geometry	1
Economics	1	Solid Geometry	1
Problems of Democracy	1	Trigonometry	1
Social Science	1	Mechanical Drawing	1
English	4	Business Subjects	2
Greek	3	General Science	1
Latin	4	Biology	1
French	2	Chemistry	1
German	2	Physics	1

COURSE REQUIREMENTS

Of the total of sixteen units required for admission a specified number must be offered in prescribed subjects, which vary from course to course. The following tables summarize the required and elective units to be offered by candidates for the various degrees:

BACHELOR OF ARTS

English	4
History of United States	1
Latin	2 to 4
Mathematics	2
*Modern Language	2
Science	1
Other Subjects	2 to 4
	16

BACHELOR OF SCIENCE

(*Pre-Medical; Pre-Dental; Science Majors*)

Algebra	1
English	4
History of United States	1
*Modern Language	2
Plane Geometry	1
Science	1
Other Subjects	6
	16

BACHELOR OF SCIENCE

(*Education; History; Social Sciences*)

English	4
History of United States	1
Mathematics	2
*Modern Language	2
Science	1
Other Subjects	6
	16

BACHELOR OF SCIENCE

(*Major: Business Administration*)

Mathematics	2
English	4
History of United States	1
*Modern Language	2
Science	1
Other Subjects	6
	16

PRE-ENGINEERING AND PHYSICS

Algebra	2
English	4
History of United States	1
Plane Geometry	1
Science	1
Other Subjects	7
	16

* Candidates without secondary school credit in a modern foreign language must register in one of the elementary courses and continue their study of the language during Sophomore Year.

Students with two or more years of high-school preparation in a modern foreign language will continue their study of the same language at a level determined by their standing in the entrance placement test.

German is the prescribed language for candidates for the Bachelor of Science Degree in Chemistry and Physics. Students planning post-graduate work on attaining the Bachelor's Degree are advised that French and German are the languages usually required of candidates for advanced degrees.

College Degrees

The College of Arts and Sciences at the University of Scranton awards three academic degrees, Bachelor of Arts, Bachelor of Science and Master of Arts in Education. The various courses of study are arranged in two main groups, each one leading to one of these degrees. The Bachelor of Arts course affords the student the opportunity to major in Classical Languages, Education, English, History, Modern Languages or Social Sciences. Within the Bachelor of Science group various subdivisions are found depending on whether the student is majoring in Accounting, Business Administration, Biology, Chemistry, Economics, Education, Electronics, English, History, Mathematics, Philosophy, Physics, Political Science, Psychology or Sociology.

BACHELOR OF ARTS DEGREE

The course of studies terminating in a Bachelor of Arts degree is characterized by a two year study of Latin literature. For those majoring in Classics two years of the study of Greek are also required. The student pursuing this course may major in the fields of Classics, English, History, Education, Modern Languages or the Social Sciences.

BACHELOR OF SCIENCE DEGREE

The courses which lead to the degree of Bachelor of Science fall into three general groups. The pure science courses are designed for students who wish to major in the fields of Biology, Chemistry, Physics or Mathematics or who wish to fulfill the requirements for entrance into medical or dental school. The second group of courses enables the student, lacking in prerequisites for the Arts course, to major in the fields of Education, Psychology, History or the Social Sciences.

The third group of courses leads to the degree of Bachelor of Science in Business Administration with a major in Accounting or General Business. In all these courses certain general cultural subjects such as English and Philosophy are prescribed.

These fields of study afford a student who has not completed the prerequisites for the A.B. course in high school an opportunity to pursue a course of study which will fit him for graduate work in law, education, business or government.

DEGREE REQUIREMENTS

To receive the Bachelor's degree a student is required to complete successfully all prescribed courses in the curriculum for which he has registered. In addition to the credit requirement each candidate for a degree must maintain a quality point average of 1.00 to qualify for the bachelor's degree. A credit of semester hour represents one hour a week for one semester except when a class period is conducted in the style of a conference or seminar, in which case fewer credits are granted. Two or more hours of laboratory work are counted as the equivalent of one lecture period.

PRESCRIBED COURSES

Certain courses are prescribed for all the curricula leading to the bachelor's degree. These include required courses in English, Mathematics and the sequence of Philosophy courses comprising Logic, Epistemology, Cosmology, Metaphysics, Ethics, Psychology and Natural Theology. Each student must also complete a year of advanced language, continuing the modern language which he started in high school. In cases where a student is permitted to take an elementary language course, he will be required to take the advanced course in his Sophomore year. Moreover in all the curricula at least one year of U. S. History and, excepting Business Administration, courses in the physical and biological sciences are required. In addition in each of the various curricula certain courses are prescribed as necessary for the minimum requirement for the particular degree awarded upon successful completion of the curriculum. These prescribed courses are outlined in detail in the summaries contained in the following pages. Catholic students are also required to pursue a prescribed course in Theology in each of the four years; non-Catholic students must take an equivalent number of elective credits to substitute for the credits in Theology. Students who do not take Military Science are required to take Physical Education instead.

MAJOR FIELDS OF STUDY

Before the close of his sophomore year each student with the assistance of his faculty adviser and the approval of the Dean

must determine his major elective for the ensuing two years. The field of concentration for students who wish to major in science or to prepare for medical school is normally determined by the course they choose upon entering Freshman year.

In determining the major elective the decisive factor is not the student's desires, but his prospective vocation in life. Consequently what is elective with the student is not so much his studies, especially in details, but rather the career which he wishes to follow. In all cases it is clearly understood that, no matter what a student's major may be, he is still obliged to follow the prescribed courses of Philosophy in Junior and Senior years.

To major a student must present a minimum of six upper division courses (18 to 24 semester hours in the same field).

The major fields of study are:

Accounting
Biology
Business Administration
Chemistry
Classical Languages
Economics
Education
English
History
Mathematics
Modern Languages
Philosophy
Physics and Electronics
Political Science
Psychology
Sociology

RECOMMENDATION

No recommendation for graduate studies or professional schools will be given to any student who does not maintain a 1.5 quality point average in his major field.

GRADUATION HONORS

The degree of Bachelor of Arts or of Bachelor of Science shall be conferred with distinction under the following rules: Students who have completed a minimum of one hundred hours in the University of Scranton are eligible for general honors. Those who earn an average of two quality points a semester hour are recommended for a degree cum laude. Those who earn an average of at least two and one-half quality points a semester hour are recommended for a degree magna cum laude. Those who earn an average of three quality points a semester hour are recommended for a degree summa cum laude.

HONORS COURSES

An Honors Course is available in all major fields of study under the direction of the department head. Students with a "B" average (2.0) are eligible, their eligibility being determined in the last semester of Junior year. To qualify for honors at graduation a student must have written a Senior thesis in his major field of study, have passed a written comprehensive in the major field of study and finally will have presented before a board of outside examiners both the special topic of the Senior thesis and the general background of the major study.

Honors in a major field of study at graduation are awarded independently of the distinctions—cum laude, magna cum laude and summa cum laude. These latter qualifications are given for the general academic average for all studies as described in the catalog. The "honors" distinction is given for the major field of study.

PRE-LEGAL STUDIES

Applicants interested in the study of law may enroll in any of the following courses:

1. Bachelor of Arts—Major: Classics
2. Bachelor of Science—Major: Political Sciences
3. Bachelor of Science—Major: History
4. Bachelor of Science—Major: Economics
5. Bachelor of Science—Major: Sociology
6. Bachelor of Science—Major: English
7. Bachelor of Science—Major: Business

A major in any of the curricula listed above satisfies the requirements of the Pennsylvania State Board of Law Examiners and meets the admission requirements of all accredited law schools. The prospective lawyer is urged to enroll for the Bachelor of Arts if he has three units of high school Latin. If the applicant has not completed three years of Latin he may enroll for any of the other majors indicated.

GRADUATE STUDIES IN EDUCATION

The Department of Education and Psychology of the University of Scranton offers a graduate program leading to the Master of Arts degree in Education. Qualified students will be admitted

to graduate courses as unclassified graduate students or as candidates for the Master's Degree.

The purposes of the graduate studies in Education at the University of Scranton are as follows:

1. To further the professional development of classroom instructors, guidance counselors and supervisory personnel.
2. To offer to the graduate student a scholarly preparation for further research and study in the field of education.

A Graduate Advisory Committee is responsible for the supervision of the graduate program in Education. It is the function of this Committee to determine the acceptability of the candidate for a degree.

The University, through the Graduate Advisory Committee, reserves the right to modify its regulations at any time to conform to current University and Graduate School practices.

ADMISSION TO GRADUATE STUDIES

The applicant for admission to graduate courses must at the time of application present certification that he has received a baccalaureate degree from an accredited college or university. After admission to graduate work the student gains unclassified status.

ADMISSION TO CANDIDACY FOR MASTER'S DEGREE

Before an unclassified graduate student can be admitted to candidacy for the Master's degree he must give evidence to the Graduate Advisory Committee of sufficient liberal and professional undergraduate preparation of good quality. The amount of professional undergraduate preparation is ordinarily consistent with state teaching requirements.

Further requirements for degree candidacy are:

1. The passing successfully of at least six semester hours of course credit at the University of Scranton.
2. Satisfactory achievement on the Graduate Record Examination.
3. Application for status as a degree candidate.

REQUIREMENTS FOR THE MASTER'S DEGREE

COURSES

The candidate for the Master's degree in Education must complete twenty-four hours of course credit, at least two-thirds of which must be in courses numbered 200 or over. Six additional credits are allowed upon acceptance of the completed thesis.

The course requirements include a sequence of at least sixteen semester hours in a major concentration (cf. pages 41-43): History and Philosophy of Education; Secondary Education; Educational Psychology and Guidance; and at least eight semester hours of such minor courses as his advisor may require. A minor sequence of courses in United States History and Political Science is offered to graduate students interested in this subject matter area.

All degree candidates will successfully complete Education 200 and 201 or present evidence of a sound knowledge of Scholastic Philosophy. Education 202, 203 and 204 are also required for the Master's degree.

THESIS

The candidate must prepare a thesis on a problem approved by his advisor, giving evidence of ability to do independent investigation. Two typewritten copies of the completed thesis approved by the advisor must be submitted to the Graduate Advisory Committee on or before the date specified in the college calendar. At least one thesis seminar is required of each candidate engaged in writing a thesis. A candidate who does not complete the thesis in one seminar may be required to take one or two additional thesis seminars.

RESIDENCE

Work for the degree must be taken in residence at the University and generally one year of full-time study or its equivalent will be necessary to complete the work. Teachers in service will not be permitted to enroll for more than six semester hours during any one semester. Students may transfer no more than six graduate credits from an accredited college or university graduate school to the University of Scranton. Graduate credits so applied must be transferred from the accredited graduate school subse-

quent to the acceptance of the candidate for the advanced degree by the transferring school, and so certified by the dean of that school. These credits must have been earned in courses within the major or minor area of specialization.

EXAMINATIONS AND GRADES

Courses numbered 200 and above are open only to graduate students. Courses at the 150 level may be taken for graduate-undergraduate credit. At least two-thirds of the thirty semester hours must be taken in the 200 level courses. To receive credit for a course the student must be in regular attendance and must pass a written examination in the course, given at a definite time and place. Special examinations will be given only upon the approval of the Dean of Studies and upon payment of a fee. The student will receive a pass (P) or a fail (F) in graduate courses (200 level). In graduate courses a passing grade (P) is equivalent to B or better. In the 150 level courses he must earn at least a "B" grade to gain graduate credit.

FINAL EXAMINATIONS

A final examination, written and oral, must be passed by the candidate for the advanced degree. These examinations will test major and minor areas of specialization and will contain questions in the general field of Education and in specific course content.

SUMMARY

The following is a summary of the procedure for candidates for the Master of Arts degree:

(a) Present a properly completed application blank and certified transcript of undergraduate credits (and certified graduate transcript, if graduate work has been taken elsewhere) to the Graduate Advisory Committee.

(b) Upon admission secure an approved program in writing of at least twenty-four hours of graduate work from the Department of Education and Psychology and present this approved program for registration.

(c) Complete the required courses of the program, make formal application for candidacy, and then take the Gradu-

ate Record Examination if not taken previously. The student will be notified by the Graduate Advisory Committee of his acceptance to candidacy and assigned a faculty advisor.

(d) Complete the remaining graduate courses.

(e) Complete the thesis requirement.

(f) Apply to the Department of Education and Psychology for the final examination after approval of the thesis has been secured.

(g) Pass the final examination at least three weeks before the degree is to be granted.

MASTER OF ARTS IN EDUCATION

MAJOR AREAS OF CONCENTRATION

HISTORY AND PHILOSOPHY OF EDUCATION

		Semester Hours
Ed. 200 & 201	Survey of Scholastic Philosophy	4
Ed. 202	Educational Research	2
Ed. 150	History of Philosophy	2
Ed. 203 & 204	Educational Philosophy, Advanced	4
Ed. 250	Ethics and Modern Social Problems	2
Ed. 205	Comparative Education	2
Ed. 206	History of Secondary Education in U. S.	2
Ed. 207	A History of the Problems in Education	2

SECONDARY EDUCATION

Ed. 200 & 201	Survey of Scholastic Philosophy	4
Ed. 202	Educational Research	2
Ed. 203 & 204	Educational Philosophy. Advanced	4
*Ed. 208	Educational Tests and Measurement	2
Ed. 209	Modern Trends in Teaching	2
Ed. 210	Secondary School Curriculum	2
Ed. 211	Problems in Secondary Education	2

		Semester Hours
*Ed. 213	Extra-Class Activities	2
Ed. 260	Secondary School Management	2
Ed. 271	Measurement of Attainment	2

GUIDANCE AND EDUCATIONAL PSYCHOLOGY

Ed. 200 & 201	Survey of Scholastic Philosophy	4
Ed. 202	Educational Research	2
Ed. 203 & 204	Educational Philosophy, Advanced	4
Ed. 155	Introduction to Guidance	3
Ed. 151	*(a) Educational Statistics I	2
Ed. 152	(b) Educational Statistics II	2
(a) Ed. 208	Educational Measurement	2
(b) Ed. 271	Measures of Attainment	2
(c) Ed. 272	Personality Measurement	2
(d) Ed. 217	Special Abilities Testing	2
(e) Ed. 157	Intelligence Testing--Individual	3
(a) Ed. 156	Research in Occupational Information	3
(b) Econ. 150	Labor Problems	3
(c) Ed. 273	Community Social Agencies	2
(d) Ed. 274	Principles and Practices of Group Guidance	2
(a) Ed. 270	Advanced General Psychology	2
(b) Ed. 214	Educational Psychology, Advanced	2
(c) Ed. 215	Child Development	2
(d) Ed. 216	Adolescent Development	2
(e) Ed. 153	Mental Hygiene	2
(f) Ed. 154	Abnormal Psychology	2
(a) Ed. 225	Techniques of Case Work and Recording	2
(b) Ed. 218	Counseling Methods	2
**(c) Ed. 275	Supervised Counseling Practicum	2

		Semester Hours
(a) Ed. 219	Development of School Guidance Programs	2
(b) Ed. 213	Extra-Class Activities	2

*Letter sequence denotes recommended order of enrolling in the courses.

**To be scheduled only with the permission of the instructor.

GRADUATE COURSES IN HISTORY

MINOR SEQUENCE

AMERICAN HISTORY AND GOVERNMENT

Hist. 200	Major Trends in American Historiography	2
Hist. 202	Contemporary Problems of American Foreign Policy	2
Hist. 204	Party Government in the United States	2
Hist. 206	The United States in the Twentieth Century	2
Hist. 208-209	History of American Political Thought	4
Hist. 210-211	American Constitutional History	4
Hist. 212-213	Social and Literary Record of the United States Since 1865	4
Hist. 214	Problems in the History of American Foreign Policy, 1775-1861	2
Hist. 215	Problems in the History of American Policy, 1861-1921	2
Hist. 216	Development of American Civilization	2
Hist. 217	Colonial America of 1783	2
Hist. 218	The Civil War Period and Reconstruction, 1852-1876	2
Hist. 219	Political and Social History of the United States, 1789-1828	2
Hist. 220	Political and Social History of the United States, 1828-1865	2
Hist. 221	Contemporary European Problems	2
Hist. 222	Contemporary European Problems	2

CURRICULUM TABLES

BACHELOR OF ARTS

Major in Classics

Students pursuing the Bachelor of Arts Course may also major in Education, English, History, Modern Languages or Social Science.

FRESHMAN I

	Credits
English 1, 3	4
Latin 21	4
Mathematics 7 or Greek 4	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	18

FRESHMAN II

	Credits
English 2, 4	4
Latin 22	4
Mathematics 8 or Greek 21	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	18

SOPHOMORE I

English 23	3
Latin 31	4
Greek 22 or Biology 3	3
History 1	3
Theology 21	2
Military Science 3	2
	17

SOPHOMORE II

English 24	3
Latin 32	4
Greek 23 or Biology 4	3
History 2	3
Theology 22	2
Military Science 4	2
	17

JUNIOR I

Philosophy 101	4
Physics 1	4
Theology 101	2
Electives (Classics)	6
	16

JUNIOR II

Philosophy 103	4
Physics 2	4
Theology 102	2
Electives (Classics)	6
	16

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (Classics)	6
	16

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (Classics)	6
	16

Total: 134 credits

BACHELOR OF SCIENCE

Major in English

Freshman I	Credits
English 1, 3	4
Biology 3	3
Mathematics 7	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	17

Freshman II	Credits
English 2, 4	4
Biology 4	3
Mathematics 8	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	17

Sophomore I	
English 23	3
History 1	3
Physics 3	3
Sociology 21	3
Theology 21	2
Military Science 3	2
	16

Sophomore II	
English 24	3
History 2	3
Chemistry 4	3
Sociology 22	3
Theology 22	2
Military Science 4	2
	16

Junior I	
Philosophy 101	4
History 3	3
Economics 23	3
Theology 101	2
Electives (English)	6
	18

Junior II	
Philosophy 103	4
History 4	3
Economics 24	3
Theology 102	2
Electives (English)	6
	18

Senior I	
Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (English)	6
	16

Senior II	
Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (English)	6
	16

Total: 134 credits

BACHELOR OF SCIENCE

Major in Economics

FRESHMAN I

	Credits
English 1, 3	4
Biology 3	3
Mathematics 7	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	17

FRESHMAN II

	Credits
English 2, 4	4
Biology 4	3
Mathematics 8	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	17

SOPHOMORE I

English 23	3
History 1	3
Physics 3	3
Economics 23	3
Theology 21	2
Military Science 3	2
	16

SOPHOMORE II

English 24	3
History 2	3
Chemistry 4	3
Economics 24	3
Theology 22	2
Military Science 4	2
	16

JUNIOR I

Philosophy 101	4
History 3	3
Sociology 21	3
Theology 101	2
Electives (Economics)	6
	18

JUNIOR II

Philosophy 103	4
History 4	3
Sociology 22	3
Theology 102	2
Electives (Economics)	6
	18

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (Economics)	6
	16

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (Economics)	6
	16

Total: 134 credits

BACHELOR OF SCIENCE

Major in History

Freshman I

	Credits
English 1, 3	4
Biology 3	3
Mathematics 7	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	17

Freshman II

	Credits
English 2, 4	4
Biology 4	3
Mathematics 8	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	17

Sophomore I

English 23	3
History 1	3
Physics 3	3
Sociology 21	3
Theology 21	2
Military Science 3	2
	16

Sophomore II

English 24	3
History 2	3
Chemistry 4	3
Sociology 22	3
Theology 22	2
Military Science 4	2
	16

Junior I

Philosophy 101	4
History 3	3
Economics 23	3
Theology 101	2
Electives (History)	6
	18

Junior II

Philosophy 103	4
History 4	3
Economics 24	3
Theology 102	2
Electives (History)	6
	18

Senior I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (History)	6
	16

Senior II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (History)	6
	16

Total: 134 credits

BACHELOR OF SCIENCE

Major in Political Science

FRESHMAN I

	Credits
English 1, 3	4
Biology 3	3
Mathematics 7	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	17

FRESHMAN II

	Credits
English 2, 4	4
Biology 4	3
Mathematics 8	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	17

SOPHOMORE I

English 23	3
History 1	3
Physics 3	3
Sociology 21	3
Theology 21	2
Military Science 3	2
	16

SOPHOMORE II

English 24	3
History 2	3
Chemistry 4	3
Sociology 22	3
Theology 22	2
Military Science 4	2
	16

JUNIOR I

Philosophy 101	4
History 3	3
Economics 23	3
Theology 101	2
Electives (Political Science)	6
	18

JUNIOR II

Philosophy 103	4
History 4	3
Economics 24	3
Theology 102	2
Electives (Political Science)	6
	18

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (Political Science)	6
	16

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (Political Science)	6
	16

Total: 134 credits

BACHELOR OF SCIENCE

Major in Sociology

Freshman I

	Credits
English, 1, 3	4
Biology 3	3
Mathematics 7	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	17

Freshman II

	Credits
English 2, 4	4
Biology 4	3
Mathematics 8	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	17

Sophomore I

English 23	3
History 1	3
Physics 3	3
Sociology 21	3
Theology 21	2
Military Science 3	2
	16

Sophomore II

English 24	3
History 2	3
Chemistry 4	3
Sociology 22	3
Theology 22	2
Military Science 4	2
	16

Junior I

Philosophy 101	4
History 3	3
Economics 23	3
Theology 101	2
Electives (Sociology)	6
	18

Junior II

Philosophy 103	4
History 4	3
Economics 24	3
Theology 102	2
Electives (Sociology)	6
	18

Senior I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (Sociology)	6
	16

Senior II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (Sociology)	6
	16

Total: 134 credits

BACHELOR OF SCIENCE

Major in Education

FRESHMAN I

	Credits
English 1, 3	4
Biology 3	3
Mathematics 7	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	17

FRESHMAN II

	Credits
English 2, 4	4
Biology 4	3
Mathematics 8	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	17

SOPHOMORE I

English 23	3
History 1	3
Physics 3	3
Sociology 21	3
Theology 21	2
Military Science 3	2
	16

SOPHOMORE II

English 24	3
History 2	3
Chemistry 4	3
Sociology 22	3
Theology 22	2
Military Science 4	2
	16

JUNIOR I

Philosophy 101	4
Economics 23	3
Education 21	3
Theology 101	2
Electives (Teaching Field)	6
	18

JUNIOR II

Philosophy 103	4
Economics 24	3
Education 111	3
Theology 102	2
Electives (Teaching Field)	6
	18

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (Education)	6
	16

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (Education)	6
	16

Total: 134 credits

BACHELOR OF SCIENCE

Major in Psychology

FRESHMAN I

	Credits
English 1, 3	4
Biology 3	3
Mathematics 7	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	17

FRESHMAN II

	Credits
English 2, 4	4
Biology 4	3
Mathematics 8	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	17

SOPHOMORE I

English 23	3
History 1	3
Physics 3	3
Sociology 21	3
Theology 21	2
Military Science 3	2
	16

SOPHOMORE II

English 24	3
History 2	3
Chemistry 4	3
Sociology 22	3
Theology 22	2
Military Science 4	2
	16

JUNIOR I

Philosophy 101	4
History 3	3
Economics 23	3
Theology 101	2
Electives (Psychology)	6
	18

JUNIOR II

Philosophy 103	4
History 4	3
Economics 24	3
Theology 102	2
Electives (Psychology)	6
	18

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (Psychology)	6
	16

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (Psychology)	6
	16

Total: 134 credits

BACHELOR OF SCIENCE

Major in Biology

FRESHMAN I

	Credits
Biology 1	4
English 1, 3	4
Mathematics 11	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	18

FRESHMAN II

	Credits
Biology 2	4
English 2, 4	4
Mathematics 12	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	18

SOPHOMORE I

Chemistry 1	4
English 23	3
Biology 21	4
History 1	3
Theology 21	2
Military Science 3	2
	18

SOPHOMORE II

Chemistry 2	4
English 24	3
Biology 22	4
History 2	3
Theology 22	2
Military Science 4	2
	18

JUNIOR I

Philosophy 101	4
Physics 1	4
Theology 101	2
Electives (Biology)	8
	18

JUNIOR II

Philosophy 103	4
Physics 2	4
Theology 102	2
Electives (Biology)	8
	18

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (Biology)	8
	18

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (Biology)	8
	18

Total: 144 credits

BACHELOR OF SCIENCE

Pre-Medical and Pre-Dental Course

FRESHMAN I

	Credits
Biology 1	4
English 1, 3	4
Mathematics 11	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	18

FRESHMAN II

	Credits
Biology 2	4
English 2, 4	4
Mathematics 12	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	18

SOPHOMORE I

Chemistry 1	4
English 23	3
Biology 21	4
History 1	3
Theology 21	2
Military Science 3	2
	18

SOPHOMORE II

Chemistry 2	4
English 24	3
Biology 22	4
History 2	3
Theology 22	2
Military Science 4	2
	18

JUNIOR I

Philosophy 101	4
Physics 1	4
Theology 101	2
Chemistry 101	4
Biology 103	4
	18

JUNIOR II

Philosophy 103	4
Physics 2	4
Theology 102	2
Chemistry 102	4
Biology 105	4
	18

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Elective (Biology or Chemistry)	4
Biology 120	4
	18

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Chemistry 22	4
Biology 121	4
	18

Total: 144 credits

BACHELOR OF SCIENCE

Major in Chemistry

FRESHMAN I

	Credits
Chemistry 1	4
English 1, 3	4
Mathematics 11	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	18

FRESHMAN II

	Credits
Chemistry 2	4
English 2, 4	4
Mathematics 12	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	18

SOPHOMORE I

Chemistry 21	4
English 23	3
Mathematics 21	4
History 1	3
Theology 21	2
Military Science 3	2
	18

SOPHOMORE II

Chemistry 22	4
English 24	3
Mathematics 22	4
History 2	3
Theology 22	2
Military Science 4	2
	18

JUNIOR I

Philosophy 101	4
Physics 1	4
Theology 101	2
Chemistry 123	4
Chemistry 101	4
	18

JUNIOR II

Philosophy 103	4
Physics 2	4
Theology 102	2
Chemistry 124	4
Chemistry 102	4
	18

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Chemistry 125	4
Chemistry 126	4
	18

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Chemistry 103	4
Chemistry 132	2
Chemistry 106	2
	18

Total: 141 credits

Electives:
Chemistry 121-122 .....6 credits
Chemistry 127 .....1 credit

BACHELOR OF SCIENCE

Major in Mathematics

FRESHMAN I

	Credits
Chemistry 1	4
English 1, 3	4
Mathematics 11	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	18

FRESHMAN II

	Credits
Chemistry 2	4
English 2, 4	4
Mathematics 12	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	18

SOPHOMORE I

Physics 18	4
English 23	3
Mathematics 21	4
History 1	3
Theology 21	2
Military Science 3	2
	18

SOPHOMORE II

Physics 20	4
English 24	3
Mathematics 22	4
History 2	3
Theology 22	2
Military Science 4	2
	18

JUNIOR I

Philosophy 101	4
Physics 19	4
Theology 101	2
Electives (Mathematics)	6
	16

JUNIOR II

Philosophy 103	4
Physics 21	4
Theology 102	2
Electives (Mathematics)	6
	16

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (Mathematics)	6
	16

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (Mathematics)	6
	16

Total: 138 credits

BACHELOR OF SCIENCE

Major in Physics

FRESHMAN I

	Credits
Chemistry 1	4
English 1, 3	4
Mathematics 11	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	18

FRESHMAN II

	Credits
Chemistry 2	4
English 2, 4	4
Mathematics 12	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	18

SOPHOMORE I

Physics 18	4
English 23	3
Mathematics 21	4
History 1	3
Theology 21	2
Military Science 3	2
	18

SOPHOMORE II

Physics 20	4
English 24	3
Mathematics 22	4
History 2	3
Theology 22	2
Military Science 4	2
	18

JUNIOR I

Philosophy 101	4
Mathematics 101	3
Theology 101	2
Physics 19	4
Physics 104	4
	17

JUNIOR II

Philosophy 103	4
Mathematics 102	3
Theology 102	2
Physics 21	4
Physics 105	4
	17

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Electives (Physics)	7
	17

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Electives (Physics)	7
	17

Total: 140 Credits

BACHELOR OF SCIENCE

Major in Electronics

FRESHMAN I

	Credits
Chemistry 1	4
English 1, 3	4
Mathematics 11	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	18

FRESHMAN II

	Credits
Chemistry 2	4
English 2, 4	4
Mathematics 12	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	18

SOPHOMORE I

Physics 18	4
English 23	3
Mathematics 21	4
History 1	3
Theology 21	2
Military Science 3	2
	18

SOPHOMORE II

Physics 20	4
English 24	3
Mathematics 22	4
History 2	3
Theology 22	2
Military Science 4	2
	18

JUNIOR I

Philosophy 101	4
Mathematics 101	3
Theology 101	2
Physics 19	3
Physics 106	4
	16

JUNIOR II

Philosophy 103	4
Mathematics 110	3
Theology 102	2
Physics 21	4
Physics 107	4
	17

SENIOR I

Philosophy 105	4
Philosophy 110	4
Theology 110	2
Physics 104	4
Physics 108	4
	18

SENIOR II

Philosophy 107	4
Philosophy 111	4
Theology 111	2
Physics 105	4
Physics 109	4
	18

Total: 141 credits

PRE-ENGINEERING

FRESHMAN I

	Credits
Chemistry 1	4
Engineering 13	3
Mathematics 13	4
English 1, 3	4
Theology 1	2
Military Science 1	2
	19

FRESHMAN II

	Credits
Chemistry 2	4
Physics 18	4
Mathematics 14	4
English 2, 4	4
Theology 2	2
Military Science 2	2
	20

SOPHOMORE I

Engineering 23 or 25	3
*Engineering 21	4
Mathematics 21	4
Physics 19	4
English 23	3
Theology 21	2
Military Science 3	2
	18 or 22

SOPHOMORE II

Engineering 24	3
*Engineering 22	4
Mathematics 22	4
Physics 20	4
English 24	3
Theology 22	2
Military Science 4	2
	18 or 22

*Engineering 21 and 22 is not recommended for students attaining a cumulative quality point average of less than 1.5.

Students who are not required to take military science or theology may take a general study subject such as history.

SOPHOMORE I (for 1953-54 only)

	Credits
English 23	3
Mathematics 21	4
Physics 18	4
Engineering 23 or 25	3
Theology 21	2
Military Science 3	2
	18

SOPHOMORE II

	Credits
English 24	3
Mathematics 22	4
Physics 19	4
Engineering 24	2
Physics 20	4
Theology 22	2
Military Science 4	2
	21

BACHELOR OF SCIENCE

Major in Accounting

FRESHMAN I

	Credits
English 1, 3	4
Business 1	4
Business 3, 29	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	18

FRESHMAN II

	Credits
English 2,4	4
Business 2	4
Business 4, 30	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	18

SOPHOMORE I

English 23	3
Business 5	2
Business 21	3
Economics 23	3
History 1	3
Theology 21	2
Military Science 3	2
	18

SOPHOMORE II

English 24	3
Business 6	2
Business 22	3
Economics 24	3
History 2	3
Theology 22	2
Military Science 4	2
	18

JUNIOR I

Philosophy 101	4
Business 101	3
Business 103	3
Theology 101	2
Business 25	2
Business 105	3
	17

JUNIOR II

Philosophy 103	4
Business 102	3
Business 104	3
Theology 102	2
Business 26	2
Business 106	3
	17

SENIOR I

Philosophy 105	4
Philosophy 110	4
Business 122	3
Theology 110	2
Business 126	2
Business 120	2
	17

SENIOR II

Philosophy 107	4
Philosophy 111	4
Business 123	3
Theology 111	2
Business 127	2
Business 121	2

Total: 140 credits

BACHELOR OF SCIENCE

Major in General Business

FRESHMAN I

	Credits
English 1, 3	4
Business 1	4
Business 3, 29	3
Modern Language 21	3
Theology 1	2
Military Science 1	2
	18

FRESHMAN II

	Credits
English 2, 4	4
Business 2	4
Business 4, 30	3
Modern Language 22	3
Theology 2	2
Military Science 2	2
	18

SOPHOMORE I

English 23	3
Business 5	2
Business 21	3
Economics 23	3
History 1	3
Theology 21	2
Military Science 3	2
	18

SOPHOMORE II

English 24	3
Business 6	2
Business 22	3
Economics 24	3
History 2	3
Theology 22	2
Military Science 4	2
	18

JUNIOR I

Philosophy 101	4
Business 103	3
Business 107	4
Theology 101	2
Business 25	2
Business 105	3
	18

JUNIOR II

Philosophy 103	4
Business 104	3
Business 108	4
Theology 102	2
Business 26	2
Business 106	3
	18

SENIOR I

Philosophy 105	4
Philosophy 110	4
Business 126	2
Theology 110	2
Electives (General Business)	4
	16

SENIOR II

Philosophy 107	4
Philosophy 111	4
Business 127	2
Theology 111	2
Electives (General Business)	4
	16

Electives will be offered in either Finance (Bus. 130 to 139), Marketing (Bus. 140 to 149), Management (Bus. 150 to 159), or Economics concentrations, or in the General Business Electives (Bus. 160 to 168).
Total: 140 credits

Courses of Instruction

DEPARTMENT OF FINE ARTS

Mr. Mann, Mr. Gallagher, Miss Galenas

1. *Art and Lettering* — *3 credits*

Principles of drawing and composition, freehand drawing, perspective, media, instrument drawing, posters and show-cards, reproduction.
Evening

2. *Art and Lettering* — *3 credits*

Continuation of Art 1, which is prerequisite to this course.
Evening

3. *Mechanical Drawing* — *2 credits*

Use of drawing instruments, lettering, orthographic projection, perspective drawing, dimensioning, sectional representation, preparation of drawings and tracings, general and detail drawings of machine parts.
Evening

4. *Mechanical Drawing* — *2 credits*

Continuation of Mechanical Drawing 1, which is prerequisite for this course.
Evening

5. *Art Appreciation* — *3 credits*

A survey course devoted to the interpretation and appreciation of architecture, sculpture and painting. Egypt and Mesopotamia. Aegean civilization. Greece and Rome. Early Christian and Byzantine art. Romanesque and Gothic art.

6. *Art Appreciation* — *3 credits*

A continuation of Art. 5. Renaissance architecture and sculpture. Italian schools of painting. Baroque art. Painting in the Low Countries and England. French painting from classicism to post-impressionism. Modern painting illustrated by cubism, non-objectivism, expressionism and surrealism.

7. *Music Appreciation* — *3 credits*

This course is designed to present such information as is necessary for the intelligent enjoyment of the various forms of music. It includes a survey of musical history from the ancient period, including the ancient Greek, through the transition from the Greek to the early Christian Church and the Medieval period. Lectures are illustrated by recordings and piano.

8. *Music Appreciation* — *3 credits*

A continuation of Music 7. Treats the musical history of the fifteenth century and the rise of the national schools; instruments and instrumental music, the Romantic period, the twentieth century and music in America.

21. *Greek Art* — *3 credits*
Evening

22. *Medieval Art* — *3 credits*
Evening

23. *Renaissance Art* — *3 credits*
An appreciative survey and interpretation of the visual arts, architecture, sculpture and painting of Renaissance Europe, illustrated by film strips, slides, prints.
Evening

24. *Modern and Contemporary Art* — *3 credits*
A survey and interpretation of the various schools of contemporary art from Impressionism to Surrealism. Illustrated.
Evening

30. *Lettering* — *3 credits*
Skill in lettering: rapid, fine execution for today's advertising, pen and brush, lettering with simple, modern poster designs.
Evening

31. *Perspective Drawing* — *3 credits*
A study of angular, circular, parallel and oblique perspective, pictorial and mechanical perspective and its practical applications.
Evening

32. *Cast Drawing and Sample Sketching* — *3 credits*
A course in the practice of drawing charcoal, crayon and other media are used.
Evening

33. *Figure and Nature Drawing* — *3 credits*
Interpreting the figure, analytical study of the representation of animals, birds, flowers, trees and other forms of nature. Emphasis upon structure, light and shade, and rendering in various media, visual manipulation and creative use of forms.
Evening

34. *Advertising Design and Lettering* — *3 credits*
The problem of the artist in advertising art. The sales idea presented through illustration and lettering, use of the various media suitable for newspaper illustration, and lettering, methods of reproduction.
Evening

35. *Representation* *3 credits*

Sketching in various media, delineation and composition. An organized study of the notation, significance and use of color and lighting, outdoor sketches.
Evening

36. *Illustration and Painting* *3 credits*

The professional approach to book magazines and newspaper illustration using various media: imaginative, realistic, symbolic, and decorative interpretations. Also an analytical study of painters, their styles, processes and techniques, as well as the development of the student's individuality and interpretation.
Evening

37. *Still Life Painting* *3 credits*

A course in the actual practice of oil painting. This course may be taken by those students who present to the instructor satisfactory evidence of their proficiency or upon the completion of cast drawing.
Evening

DEPARTMENT OF BIOLOGY

Dr. Wolf, *Chairman*

Courses in the Department of Biology are designed to achieve the following objectives: 1. To further the general education of the individual by presenting the fundamental facts and concepts which are needed for an understanding of the living world and his relations to it. 2. To train the individual in analytical thinking and to acquaint him with the operation of the "scientific method." 3. To develop habits of precision, accuracy, curiosity, critical evaluation, neatness and patience together with skill in laboratory techniques. 4. To prepare students for professional schools such as those of Medicine, Dentistry and allied fields or for advanced study or work in other biological fields.

1 & 2. *General Biology* *8 credits*

This course is a comprehensive survey of all the types of living organisms from the standpoint of their structures, functions, development and relationships. Representatives of the important plant and animal phyla are studied from these aspects with major emphasis on the animal groups. The course also deals with general biological principles such as the nature of life, the organization of living beings, the problems of heredity, development and evolution. It is a prerequisite for all other courses given in the department unless the contrary is specifically indicated. 2 hours lecture and 4 hours lab each semester.

3 & 4. *General Biological Sciences* *6 credits*

This is a cultural course in which general biological principles and problems are emphasized especially as they affect the human race and in relation to

human problems. It covers, in less detail, the same subject matter as the preceding course and aims at the inculcation of a more generalized knowledge of the major biological principles. Demonstrations are used extensively to supplement laboratory work. 2 hours lecture and 2 hours lab each semester.

7. *Anatomy and Physiology* *4 credits*

This is a non-technical presentation of the fundamentals of human anatomy and physiology in order to develop a correct understanding of the structure and function of the human body. There is no formal laboratory work or dissection; but demonstrations, charts, models and other visual aids are used extensively as supplementary material.
Evening

8. *Introduction to Personal Hygiene and Public Health* *4 credits*

This course is designed to give an understanding of the problems of personal hygiene and the care of the body, of the nature of disease and the principles of disease prevention. It considers the more common communicable diseases as to cause, mode of transmission, methods of control and prevention. The problems of alcoholism, narcotics, immunization, control of food and water supply, sewage disposal and public health administration are also discussed.
Evening

9. *Human Heredity* *3 credits*

This course presents the basic principles and concepts of heredity, stressing their practical application to the problems of human inheritance. 3 hours lecture and demonstrations.
Evening

21 & 22. *Comparative Vertebrate Anatomy* *8 credits*

The gross anatomy and phylogeny of the organ systems in the vertebrate organism are considered with special emphasis upon the mammalian type. Insofar as possible structure is correlated with function again with special reference to mammalian physiology. Type animals of the major vertebrate classes are studied in the laboratory with dissection confined to the shark, necturus, turtle, pigeon and cat. 2 hours lecture and 4 hours lab each semester.
Prerequisite: Biology 1 and 2.

23. *Genetics* *4 credits*

The purpose of this course is to give the student a fundamental knowledge of the basic principles and modern theories of heredity as developed by experimental, biometrical and cytological methods. Consideration is given to the practical application of the laws governing inheritance in the fields of plant and animal breeding and human heredity. 2 hours lecture and 4 hours lab.

101. *General Botany* *3 credits*

This course deals with the four major subdivisions of the plant kingdom, studying representative types from the standpoint of structure and function and the illustration of biological principles. 2 hours lecture and 2 hours lab. Prerequisite: Biology 1 and 2.

102. *General Zoology* *4 credits*

In this course a more detailed study is made of the animal organism with the work confined almost entirely to representatives of the invertebrate phyla. Detailed studies are made of structure and relationships. 2 hours lecture and 4 hours lab. Prerequisite: Biology 1 and 2.

103. *Histology* *4 credits*

This course is concerned primarily with the microscopic structure and the functioning relations of vertebrate tissues and organ systems with most attention devoted to the mammal. 2 hours lecture and 4 hours lab. Prerequisite: Biology 21 and 22.

104. *Microtechnique* *4 credits*

A course of training in the preparation of animal and plant tissues for microscopic examination. General methods of preparing histological specimens are covered in detail with special techniques included as time and interest permit. 1 hour lecture and 6 hours lab. Corequisite: Biology 103.

105. *Embryology* *4 credits*

A large part of the course is devoted to the early stages of development where gametogenesis, fertilization, cleavage, gastrulation and the formation of germ layers are treated from a comparative viewpoint. The development of general body form, of organs and of organ systems is then studied largely as it occurs in frog, chick and mammal. 2 hours lecture and 4 hours lab. Prerequisite: Biology 21 and 22.

120. *General Physiology* *4 credits*

This course deals with the basic principles and concepts underlying the functioning of the animal organism. The functions of the major organ systems are studied with special attention given to the correlation and integration of these processes in the organism. 2 hours lecture and 4 hours lab. Prerequisites: Biology 21 & 22, Chemistry 101-102, and Physics 1-2.

121. *Introductory Bacteriology* *4 credits*

Presented from the biological rather than from the strictly medical standpoint, this course is a study of bacteria as microorganisms whose life habits involve metabolic activities which have an important bearing upon human affairs. A survey of the pathogens is included with an introduction to the principles of immunology. 2 hours lecture and 4 hours lab. Prerequisites: Biology 21, 22, Chemistry 101-102, and Physics 1-2.

122. *Advanced Bacteriology* *4 credits*

This is an extension of the preceding course and involves a more detailed study of the principles and practices of bacteriology with emphasis upon the special cultural methods and tests employed in the growth and preparation of bacterial organisms. Consideration is given to serological tests and the principles upon which they are based. 2 hours lecture and 4 hours lab. Prerequisite: Biology 121.

123. *Biology Seminar* *1 credit*

The work of this course is based on recent advances in all fields of biological research and the discussion of basic problems of biology in the light of modern research results. The seminar method is used with each student contributing prepared papers and taking part in discussions. One 2 hour discussion period. Prerequisite: 20 credits in Biology.

124. *Undergraduate Research and Thesis* *1 credit*

Reserved for advanced students with satisfactory preparation in the biological and physical sciences who are desirous of acquiring methods in biological research. The subject of the problem, time and credits are to be arranged individually. Prerequisites: 20 credits in Biology, Chemistry 101-102, Physics 1-2.

125. *Fundamentals of Parasitology* *3 credits*

The course is concerned with the classification, structure, reproductive life cycles and host relationships of the most common parasites of the animal phyla. Diseases and symptoms in relation to parasitic conditions of vertebrates will be stressed. Laboratory work includes the recognition and analysis of the various parasitic forms and media in which they are produced. 2 hours lecture and 2 hours laboratory. Prerequisites: 20 credits in Biology.

DEPARTMENT OF BUSINESS ADMINISTRATION

Dr. Senker, *Chairman*; Mr. Artabane, Mr. Buckley, Mr. Doud, Mr. Houlihan, Mr. Kretschmer, Mr. McLean, Mr. Nealon, Mr. O'Malley, Mr. Walsh, Mr. Wright, Mr. Zandarski

The courses in Business Administration are designed to achieve the following objectives:

1. To develop the cultural, intellectual and moral qualities of the student through an intensive study of cultural subjects and business problems.

2. To teach the student to think clearly and logically, and to develop his application of the analytical approach in solving current business problems.

3. To encourage individuality of thought and expression by the student, and thereby develop future civic and industrial leaders.

4. To impart a training for executive positions in the business world by the study of Accounting, Law and theoretical as well as applied Economics; to serve as a preliminary training for those wishing to enter the field of Law itself; and to intensively train those wishing to enter the field of public or private accounting.

1. *Elementary Accounting* *4 credits*

Meaning and purpose of accounting. Development of the accounting equation. Detailed study of the balance sheet and profit and loss statement. The ledger record of business activities. Account and ledger technique, including complete bookkeeping procedures. Adjustments. The journal and its subdivisions. Special journals, their problems and expansion. Ledger subdivision and control accounts. Business papers, the first record of business transactions. Negotiable instruments. The worksheet and summary statements. Completing the ledger record. 4 hours lecture and 5 hours laboratory.

2. *Elementary Accounting* *4 credits*

Partnership formation and operation. Division of profits. Financial statements of a partnership. Methods of admitting a new partner. Partnership dissolution and liquidation. Organization and operation of the corporation. Detailed study of classification and accounting techniques for capital stock, bonds, mortgages, sinking funds and reserves. Corporate financial statements and their preparation. Changing from a partnership to a corporation. The voucher system. Accounting for the manufacturing concern. Departmental accounting. Inventory valuation and control. Analysis and interpretation of financial statements. 4 hours lecture and 5 hours laboratory. Prerequisite: Bus. 1.

3. *Business Mathematics* *2 credits*

A review of basic high school mathematics in preparation for accounting, statistics and other required business courses on the college level. Fundamental processes and short methods for the accountant. Checking computations. Factors and multiples. Common fractions. Fundamentals of algebra. Progression. Logarithms. Percentage in all its applications. Cash, trade and bank discounts. Commissions. Simple interest. Partial payments. Averages.

4. *Business Mathematics* *2 credits*

A continuation of business mathematics with particular emphasis on computations necessary for the solution of accounting problems. Inventories. Gross profit computations. Business insurance. Payroll records and procedures. Partnerships. Goodwill. Business finance. Public finance and taxation. Compound interest. Ordinary, life and special annuities. Bond valuation and bond interest. Asset valuation. Building and Loan Associations. Prerequisite: Bus. 3.

5. *Business Law* *2 credits*

Introduction to the study of Law. Its nature, administration and the various tribunals. Nature of a contract. Statutory and case law principles of contracts. Formation of a contract by offer and acceptance. Consideration. Capacity of parties. Unenforceable contracts. Statute of Frauds. Performance of contracts—conditions and excuses for non-performance. Rights of third parties. Assignments.

6. *Business Law* *2 credits*

Statutory and case law principles of Negotiable Instruments. Types of negotiable instruments. Issuance and negotiation of promissory notes, drafts and checks. Holders in due course. Rights and liabilities of parties to negotiable instruments. Sales of personal property. Passage of title, risk of loss and seller's warranties. Rights and remedies of unpaid seller. Prerequisite: Bus. 5.

21. *Advanced Accounting* *3 credits*

Continuation of first year accounting and its application in more complex business situations. Correlation of partnership law with accounting procedure. Detailed analysis of content and preparation of corporate balance sheets. Special problems: Installment Accounting, Capital Stock, Surplus and Partnership liquidation. 3 hours lecture and 5 hours laboratory. Prerequisite: Bus. 2.

22. *Advanced Accounting* *3 credits*

Specialized accounting problems and accepted methods for their solution. Statement of Application of Funds, Statement of Affairs, Bankruptcy and Receivership Accounts, Estate and Trust Accounting, Consignments, Agency and Branch Accounting and Joint Ventures. Comprehensive study of Consolidated Balance Sheets and Profit and Loss Statements. 3 hours lecture and 5 hours laboratory. Prerequisite: Bus. 21.

25. *Business Law* *2 credits*

Statutory and case law principles of Partnerships and Corporations. Characteristics of both organizations. Rights, duties, powers and liabilities of partners among themselves and in relation to third parties. Powers of corporations. Membership in corporations. Rights of stockholders. Management of corporations. Prerequisite: Bus. 6.

26. *Business Law* *2 credits*

Statutory and case law principles of Real Property. Conveyancing of real property. Principles of mortgage law. Principles of landlord and tenant law. Prerequisite: Bus. 25.

29. *Fundamentals of Business* *1 credit*

A survey and orientation course designed for the student to enable him to select a major field of concentration. The background of business. Basic tools

useful in business administration. The forms of business organization. Techniques of business administration. 2 hours of laboratory per week.

30. *Fundamentals of Business* *1 credit*

A continuation of Business 29. The product to be marketed. Physical facilities of plant, equipment and layout. The working force and its control. Financing the business. The production process. Selling the product. Internal control. Business risks. Business growth. Business policy. 2 hours of laboratory per week.

101. *Cost Accounting* *3 credits*

Basic principles of cost accounting and their practical application in the development of cost accounting procedures. The principles of process cost and specific order cost systems. Practical applications. Development and installation of cost systems. 2 hours lecture and 2 hours laboratory. Prerequisite: Bus. 22.

102. *Cost Accounting* *3 credits*

Principles of Estimated Cost Systems, Standard Costs and the Control of Distribution Costs. Practical applications. The development of budgets as a basis for cost control. Specialized cost treatments. Graphic presentation of costs. Reports for executive direction. 2 hours lecture and 2 hours laboratory. Prerequisite: Bus. 101.

103. *Money and Banking* *3 credits*

A general survey of the field of money, credit and prices and an introduction to the study of commercial banking. Evolution of money media, functions of money, monetary standards and the present monetary system of the United States. Commercial banking operations and the use of bank credit in financing business. History of banking in the United States. The operations of a commercial bank. Banking transactions. Recent legislation affecting money, credit and banking in the United States. Prerequisite: Econ. 24.

104. *Money and Banking* *3 credits*

A detailed study of commercial bank operations. Bank reserves, deposits and bank notes. Loans and Discounts. Bank Investments. The credit department. Interbank relations including chain, group and branch banking. The Clearing House and the Par Collection System. The Federal Reserve System. The money markets. Foreign exchange and the methods of financing foreign trade. The Banking System of the United States. Banking problems of today. Prerequisite: Bus. 103.

105. *Business Statistics* *3 credits*

Statistical methods, their importance and use in the modern business enterprise. Cautions in their use and interpretation. Initiating and conducting a statistical investigation. Use of I.B.M. equipment in the coding, sorting and preparation of statistical findings. Sampling and the concept of error. Tabular and graphic

representation of statistical data. The frequency distribution. Averages. Dispersion and Skewness. Dispersion of statistics computed from samples. Prerequisite: Econ. 24. 2 hours lecture and 2 hours laboratory.

106. *Business Statistics* *3 credits*

Introduction to the theory of probability; application to statistical problems. Index number construction. Current indices used to measure business activity, prices, wages, cost of living, etc. Time series analysis. Related time series. Correlation and forecasting. The application of statistical methods to the analysis of business data and industrial problems. Frequent use of I.B.M. equipment in an endeavor to facilitate the sorting and compilation of data needed for time series analysis and index number construction. Prerequisite: Bus. 105. 2 hours lecture and 2 hours laboratory.

107. *Marketing* *4 credits*

The distribution of a product from its very inception to its use by the ultimate consumer. Co-operative marketing, the marketing problems of the individual business, market research and analysis and the choice of marketing channels. All problems are reviewed in the light of the marketing systems of the United States with direct emphasis upon selling through chains, wholesalers, jobbers and direct distribution to retailers and consumers. Prerequisite: Econ. 24.

108. *Industrial Management* *4 credits*

The principles and problems of the business enterprise from the executive point of view. The economic background of management. Theory of specialization, simplification, standardization and diversification. Problems of industry, including location, machinery and equipment, layout, raw materials control, time and motion study and cost control. Field trips to representative industries are conducted to illustrate the theory presented. Prerequisite: Econ. 24.

120. *Auditing Theory* *2 credits*

The verification of accounts and their presentation in financial statements. A review of "generally accepted accounting principles" and an introduction to applicable auditing standards. Types of audits, relationship with the client, audit programs, the preparation of reports and the ethics of the profession. 1 hour lecture and 2 hours laboratory. Prerequisite: Bus. 22.

121. *Auditing Applications* *2 credits*

An intensive application of the theory of audits to specific cases and problems. The preparation and indexing of working papers. Selective testing. Positive and negative confirmations. Review of internal controls. Tax return audits. Types of reports currently employed. Typical audits of department stores, processing companies, investment trusts, public utilities, fraternal organizations and other enterprises. 1 hour lecture and 2 hours laboratory. Prerequisite: Bus. 120.

122. *Federal Taxation and Procedure* *3 credits*

The federal system of taxation insofar as it concerns the individual taxpayer. The nature of taxable income. A study of the Internal Revenue Code, regulations and selected materials relating to individual tax accounting. The preparation of Internal Revenue Form 1040. Pay-as-you-go Federal Tax System and required returns. Gross income, items included and excluded. Allowable deductions and credits. Filing of returns. Specialized tax accounting requirements for the individual businessman. 2 hours lecture and 2 hours laboratory. Prerequisite: Bus. 22.

123. *Federal Taxation and Procedure* *3 credits*

A study of the Internal Revenue Code, regulations and selected materials relating to partnerships, estates and trusts, and corporations. The taxing powers and tax systems of states and their municipal subdivisions; state income, municipal income, capital stock, franchise, loans, bonus, escheat, personal property and real property taxes. Federal estate tax and state inheritance and estate taxes. Miscellaneous federal taxes and the Social Security System. 2 hours lecture and 2 hours laboratory. Prerequisite: Bus. 122.

124. *Accounting Systems* *3 credits*

Principles of installation and procedure. Basic principles and procedure underlying all system work with emphasis upon the preliminary survey of a business. Principles of internal check. System work in the accounting for cash receipts, cash payments, merchandise purchases, merchandise sales, payrolls, special journals, ledgers and statements. The systems report. The second part of this course is devoted to the "important phases" of accounting systems of the more popular types of business, starting with the simplest ones. A study is made of the problems, systems and reports of Contractors, Retail Stores, Building and Loan Associations, Commercial Banks, Insurance Companies, Railroads, Motor Carriers, Air Transportation Companies, Manufacturing concerns, and Municipalities. A complete International Business Machines installation is used throughout the course in setting up each installation and procedure, thus giving the student not only the manual procedure but also the machine methods involved. Prerequisite: Bus. 123. 2 hours lecture and 2 hours laboratory.

125. *C.P.A. Problems* *3 credits*

A detailed review of problems and questions taken from current examinations given by various states to candidates for the degree of Certified Public Accountant. Partnerships, Corporations, Auditing, Cost Accounting, Taxation. Municipalities and Consolidations. 3 hours lecture and 5 hours laboratory. Prerequisite: Bus. 123.

126-127. *Corporation Finance* *4 credits*

The financial structure and problems of the modern business corporation. Common types of securities. Promotion, including the parts played by promoters,

investment banker and the security dealer. Determination, management and distribution of income. Financial problems of expansion including changes in the financial plan. Securing funds for expansion. Failure of corporations, reorganizations, readjustments and receiverships. Bankruptcy and liquidation. Prerequisite: Bus. 104.

130. *Investment Banking* *4 credits*

The organization and work of investing institutions, institutional investors, mortgage banking houses and the stock exchanges. The theory of investment banking and its relation to the business cycle, to credit analysis and to the money market. The practices of investment houses, including the work of negotiation, purchase, underwriting and distribution of new issues. The effect of recent security legislation on investment banking practices. Prerequisite: Bus. 104.

131. *Insurance* *4 credits*

The underlying principles upon which all forms of insurance are based. The most common policies affecting the individual purchaser of insurance and the business man are thoroughly analyzed. Life, Fire and allied lines, Casualty (including General Liability, Automobile Liability, Comprehensive Liability, Workmen's Compensation, Fidelity and Surety Bonds), Accident and Health (including Hospitalization) and Marine Insurance. Prerequisite: Bus. 104.

132. *Investments* *4 credits*

The distinction between the various types of investment securities. Mathematics of investments. Protection of the purchaser in buying, holding and refunding securities. The application of the recognized tests of safety, income and marketability in their selection. Underlying principles in the analysis of government, municipal, railroad, utility, industrial, bank, insurance company, real estate and foreign securities. Effects of recent and current legislation on investment procedure. Prerequisite: Bus. 104.

133. *The Money Markets* *4 credits*

The historical development and functions of the money markets of the world, their relationship to international banking and to the capital market. The structure and operation of the several components of the New York money market and their relationship to the financial activities of the U. S. Treasury and the Federal Reserve Banks. Prerequisite: Bus. 104.

134. *Public Finance* *4 credits*

The development of public finance. Public revenues, including the general property tax, the income tax, death and gift taxes, taxes on business, taxes on consumption, motor vehicle taxes, the poll tax, social security taxes and taxes on natural resources. Shifting and incidence of taxation. Public credit. Public expenditures, including state and federal aids, public works and public welfare. Problems of public borrowing. Fiscal administration, fiscal policy and the business cycle. Prerequisite: Bus. 104.

140. *Advertising* *4 credits*

The scope and function of advertising from both the mechanical and managerial points of view. The actual practice of preparing layouts, copywriting and proofreading is combined with the analysis of sales problems and policies within a company. The various advertising media such as newspapers, magazines, direct mail, radio and television reviewed in the light of practical problems. Prerequisite: Bus. 107.

141. *Retail Merchandising* *4 credits*

The practices and procedures directly concerned with the buying and selling of goods at retail for a profit. Particular emphasis is directed toward present day buying methods of a variety of retail merchandise. The problems of store layout, pricing, customer and product analysis and inventory control are subjected to close scrutiny through the medium of actual cases. Prerequisite: Bus. 107.

142. *Retail Store Management and Operation* *4 credits*

The theory and problems of managing a retail store from the store manager's point of view. The statistical aspect of retailing, including a review of operating expenses, budgetary control and wage costs. Systematic procedures in the receiving department, handling the goods, the service division, the adjustments department and the credit department. Purchasing policies and procedures. Minimizing operating expenses. Prerequisite: Bus. 107.

143. *Salesmanship* *4 credits*

Creative salesmanship covers the techniques of prospecting, approach, presentation, demonstration, handling objections, closing and follow-up of customers. Discussions, sales training films and workshop applications provide the basis for an understanding of how these proved methods are applied in modern selling. Prerequisite: Bus. 107.

144. *Industrial Purchasing* *4 credits*

This course is designed to cover procurement by manufacturers, wholesalers and retailers engaged in private industry. Topics covered include a survey of the field with emphasis on the increasing recognition being given to industrial procurement; the organization necessary for procurement; the determination of quality inspection of purchases; inventory control methods; price policies; forward buying and speculation; and the procurement budget. The classroom discussion will be supplemented by cases which will be designed to show not only the problems of procurement but also its interrelationship with the other necessary functions of a business establishment. Prerequisite: Bus. 108.

145. *Advertising Layout and Production* *4 credits*

The actual creation of advertisements, step-by-step; getting the idea of mental image, making "thumbnail sketches", rough and comprehensive layouts; select-

ing illustrations and typography, exploring the printing processes—letterpress, gravure, lithography; the selection of paper; the finished reproductions in black and white or full color for newspapers, magazines, bill boards, direct mail, television, window display and point of purchase displays. Prerequisite: Bus. 140.

146. *Sales Management* *4 credits*

The development of the habit and technique of passing judgment on the types of problems which actually confront the sales executive. Special attention will be given to a practical discussion of the problems of Sales Programs, Sales Promotions, the Management of the Sales Force, Sales Control, Sales Planning, Sales Research and Merchandising. Prerequisite: Bus. 107.

147. *Fundamentals of Display Advertising* *4 credits*

A study of the importance and the power of display advertising and point of sale material as advertising media. Included in this course are the planning and preparation of displays, personnel, budget, style, color, harmony, lighting, and the basic principles of construction and materials used. Field trips to appropriate manufacturing concerns in this industry and to retail stores conducting seasonal displays are made. Prerequisite: Bus. 140.

150. *Traffic Management* *4 credits*

This course combines the economics of transportation and the work of the traffic manager. Types of carriers, including railroad, motor, pipe line, air and water. Freight classification, rates, tariffs, special services, regulation, tracing, expediting, claims, and procedures before regulatory bodies for each type of carrier. Prerequisite: Econ. 24.

151. *Production Management* *4 credits*

Application of the principles of scientific management to production. Operation analysis, work simplification and production control including routing, scheduling, dispatching and follow up of work orders. Purchasing, classification and control of inventories. Recruitment, selection, adjustment and termination of laborers. Wage incentive systems. Prerequisite: Bus. 108.

152. *Factory Management* *4 credits*

The basic principles and methods of factory organization, operation and control. Methods of production, functional organization of the factory, machinery, equipment and tools. Materials handling equipment. Factory standards and records. Layout of plant. Time and motion studies. Stores management, inspection and follow-up of goods. Inspection trips to various types of industries are made. Prerequisite: Bus. 108.

153. *Personnel Management* *4 credits*

The management of personnel for both industrial and commercial types of organizations is included. The background of personnel management. Job

analysis, classification and evaluation. Incentive wage systems and merit rating. Sources of supply of workers, selection, interviewing, testing, transfer, promotion and training. Dealing with unions. The Labor-Management Relations Act of 1947. Safety and health, economic security and service activities. Research and statistics on personnel. Prerequisite: Econ. 24.

154. *Real Estate Management* *4 credits*

The fundamentals and problems of the real estate business. Setting up the real estate office. Qualifications of the real estate salesman and broker. Definitions of words and terminology used in the real estate business. Preparation for real estate salesman's license. Prerequisite: Bus. 26.

155. *Office Management* *4 credits*

This course covers the practical duties of the office manager. His work is viewed toward achieving greater economy and efficiency. The working departments of the office, filing, transcription and general service. Office planning, layout and equipment. Office manual and training. Office costs and budgets. Personnel problems including selection, hiring, transfer, promotion, job analysis, evaluation, classification, and salary schedules. Office systems, routines and procedures. Prerequisite: Econ. 24.

156. *Advanced Real Estate Management* *4 credits*

Preparation for real estate broker's license. Selling, leasing, managing, buying and appraising various types of real estate. Servicing mortgages from the standpoint of physical maintenance and management. Preparation for Court testimony on real estate values. Occupancy surveys. Prerequisite: Bus. 154.

157. *Industrial Relations* *4 credits*

The study of the economic forces which have engendered labor legislation, and a careful analysis of the effect of resulting conditions on employer-employee relationships. A survey of the Acts of Congress of the United States and the Legislature of the Commonwealth of Pennsylvania in the field of industrial relations. A discussion of pertinent decisions. The subject matter includes a study of the evolution of legislation, the history of industrial disputes and their influence upon labor-management relations in the fields of law, economics and industrial management. The purpose of this course is to give the student majoring in General Business and concentrating in Management or Economics a comprehensive knowledge of the problems involved, and their possible solutions, in the fields of Labor-Management relationships. Pre-requisites: Bus. 108 and Econ. 24.

158. *Retail Store Personnel Administration* *4 credits*

A complete survey of personnel administration in the department store and retail field, including the principles and procedures of personnel management currently in use or recommended for successful retail establishments. Emphasis is placed on the retail store viewpoint and on the personnel problems in the retailing field, such as selecting, training, compensating and motivating em-

ployees in retail stores, as well as testing, job evaluation, merit rating and other phases of personnel management. A survey of the development of employee representation and labor unions in this field is included. Current practice is illustrated. Prerequisite: Bus. 108.

160. *Business Policy* *4 credits*

The aim of the course is to co-ordinate the work given in the specialized business courses, to show the interrelation between economic theory and business problems, and to indicate the place of public relations in management. Actual cases in business problems are analyzed and studied, and individual research in business problems is conducted by the student. Prerequisite: Econ. 24.

161. *Credits and Collections* *4 credits*

The handling of credits and collections for the different types of business organizations. Establishment and verification of the credit position of a firm or individual. Sources of credit information. A review of the law of credit instruments. The Credit letter. The Collection letter. Collection methods. The place of bank credit departments in determining a line of credit. Prerequisite: Econ 24.

162. *Public Relations* *4 credits*

Public relations aims to measure, evaluate and apply means of creating favorable attitudes toward specific businesses. This course explores such techniques as public opinion polls, publicity and employee relations.

The multiple duties of the public relations director are explored for vocational opportunities. Assignments include analyzing the objectives of such devices as movies, newspapers, house organs, annual reports. Assignments show how a public relations program is set up and operated and how to qualify for positions in this growing vocation. Prerequisite: Econ. 24.

163. *Personal Finances* *4 credits*

A survey of the field of financing the consumer. Spending vs. saving. Budgeting income. Charge accounts and installment buying. Our monetary and banking systems. The value of money. Your bank account and the transfer and safekeeping of funds. Savings institutions and instruments. The securities markets and principles of investment. Life insurance, pension plans and social security. Home ownership. Property, accident and health insurance. Personal income taxation. Entering business for yourself. Prerequisite: Econ. 24.

201. *C.P.A. Refresher* *Optional credit*

The C.P.A. Refresher course is a highly intensive, integrated, preparatory review for those aspiring to sit for the Fall Certified Public Accounts examination in the Commonwealth of Pennsylvania. The course begins in June and continues 20 weeks, 8 hours per week consisting of two sessions of four hours each, ending immediately prior to the date of the State C.P.A. examinations. It

is available for those actually practicing accounting or for students who have recently graduated with a major in Accounting. This comprehensive review covers the following subject matter: Partnerships; Corporations; Assets; Liabilities and Net Worth; Auditing; Cost Accounting; Consolidations; Federal and State Taxation; Estates and Trusts; Business Law; Accounting for Contractors, Department Stores, Utilities, Insurance Companies, Banks, Brokers, Railroads, Motor Transportation Companies, Building and Loan Associations, and Municipalities. A feature of the course is an integration of accounting, law and taxation by subject matter. Due to the special nature of the course and the intensity of the preparation required by way of study and experience on the part of the student, permission of the director of the course is required for admission to class. The fee for the course will be $250, payable $50 per month in advance. College credit will be granted for those requiring it for a degree.

202. *Machine Accounting Institute* *No credit*

The annual machine accounting institute is offered by the University in conjunction with the National Cash Register Company to give the students majoring in accounting a survey of the developments in machine accounting. The course is of seven days duration early in January of each year and consists of seven hours of concentrated lecture and practice work on such topics as Accounts Receivable, Accounts Payable, Window Posting, Labor Distribution and Cost Records, Payroll Writing, Central Control and Proof in Banks, and Commercial Account Posting in Banks. Prerequisite: Bus. 22.

203. *Mechanical Accounting Methods Forum* *No credit*

The annual mechanical accounting methods forum is offered by the University in conjunction with the Burroughs Adding Machine Company to give the students majoring in accounting a survey of developments in machine accounting and microfilming techniques. The course is of seven days duration in April of each year and consists of seven hours of concentrated lecture and practice work on such topics as Billing, Accounts Receivable, Payroll, Wage, Stock and Cost Records, Bank Accounting, Installment Accounting and microfilming. Prerequisite: Bus. 22.

DEPARTMENT OF CHEMISTRY

Mr. Burti, *Acting Chairman*; Mr. Chatard, S.J., Mr. Lamberti, Mr. Witkoski

The aims of the department are: 1. To train students to think accurately and logically, to develop an analytical type of mind, and to inculcate the scientific method of attacking a problem not only in chemistry but in other fields of endeavor. 2. To develop character traits such as patience, pertinacity, honesty and neatness, which are indispensable to the scientist. 3. To train the student for a position carrying some degree of responsibility, either as an advanced student in a graduate school or as a member of the staff of an educational, industrial or research institution.

1 & 2. *Inorganic Chemistry* *8 credits*

A study of the laws, theories and principles of General Chemistry with a survey of the principal elements and their important compounds. Laboratory work exemplifies the classroom discussion. 3 hours lecture and 3 hours lab each semester.

4. *General Physical Science—Chemistry* *3 credits*

An introductory study of chemical science, its progress and contribution to modern civilization. The course offers an adequate treatment of experimental facts, scientific theories and generalizations concerning the chemical nature of matter, its composition and changes in composition. For non-technical students. Student participation in laboratory exercises and demonstrations will supplement the lecture material. Two hours lecture and one hour laboratory and demonstration per week.

21. *Qualitative Analysis* *4 credits*

A study of the principles of ionization, oxidation-reduction, solubility product and complex-ion formation. The laboratory work involves the semi-micro technique in the detection and separation of cations and anions. 2 hours lecture and 6 hours lab. Prerequisites: Chem. 1 and 2.

22. *Quantitative Analysis* *4 credits*

A survey of the general principles of gravimetric, volumetric and electrolytic analyses. Laboratory work stresses technique. 2 hours lecture and 6 hours lab. Prerequisites: Chem. 1, 2.

29. *Industrial Stoichiometry* *2 credits*

A survey of industrial chemical processes and calculations, stressing fuels, sulphur compounds, lime, cement and metallurgy. 2 hours lecture. Prerequisites: Chem. 1 and 2.

65. *Introduction to Textiles* *3 credits*

A study of textiles designed to acquaint the layman with modern fibers and fabrics. During this semester course are considered the origin, chemical and physical properties, methods of identification and processing of all natural fibers and modern synthetics (e.g., rayon, nylon, orlon, etc.), through the stage of yarn manufacture. Lectures include films, demonstrations and field trips.

Evening

66. *Introduction to Textiles* *3 credits*

A continuation of Chemistry 65, above, considers fabric production: weaving, knitting, dyeing, printing and finishing operations for all types of fabrics (including rugs and carpets), and their principal properties, uses and care. Lectures include films, demonstrations, field trips. Prerequisite: Chem. 65.

Evening

67. *Plastics: Theory & Practice* *3 credits*
A broad consideration of the field of plastics embodying their development; raw materials; basic principles of resinification; structure of high polymers; methods of fabrication; properties and general applications. Field trips, films, demonstrations and term papers included. Prerequisite: Chem. 102.
Evening

101 & 102. *Organic Chemistry* *8 credits*
An introduction to the chemistry of the principal aliphatic and aromatic compounds of carbon and their derivatives. Laboratory work includes investigation of the chemical properties of the compounds studied, and several of the more important organic preparations. Prerequisites: Chem 1 and 2. 2 hours lecture and 6 hours laboratory each semester.

103. *Advanced Organic Chemistry* *4 credits*
A continuation of Chem. 101-102, including a study of the alicyclics and heterocyclics, the organic dyes and the naturally occurring compounds of carbon. Laboratory work will consist of a number of the more difficult syntheses and will require some investigation of the original literature. 2 hours lecture, 6 hours laboratory. Prerequisites: Chem. 101 and 102.

104. *Unit Processes in Organic Chemistry* *3 credits*
A study of typical synthetic processes such as nitration. amination, diazotization, sulfonation, halogenation, oxidation, hydrogenation, esterification and polymerization, considering reactants, mechanism of reactions, physical and chemical factors involved, equipment and typical commercial applications. Three hours lecture. Prerequisite: Chem. 102.

105. *Industrial Chemistry* *3 credits*
A study of the Chemical and Process industries from the basic chemical reactions to finished products, including materials. methods and equipment. Three hours lecture. Prerequisite: Chem. 102.

106. *Advanced Inorganic Chemistry* *2 credits*
A detailed study of the chemical properties of elements with regard to the electronic structures and sizes. The Periodic System is the basis for such study. Two hours lecture. Prerequisites: Chem. 1 and 2 and Chem. 123 and 124.

121 & 122. *Physiological Chemistry* *6 credits*
A study of the nature and important reactions of carbohydrates, fats, proteins; their digestion, absorption and metabolism in the body. 2 hours lecture and 3 hours lab each semester. Prerequisites: Chem. 101, 102 and Chem. 21.

123 & 124. *Physical Chemistry* *8 credits*
A study of the physico-chemical properties of matter and the dynamics of chemical reactions. Laboratory experiments illustrate the principles studied.

3 hours lecture and 3 hours lab each semester. Prerequisites: Chem. 21, 22; Math. 21, 22.

125. *Advanced Quantitative Analysis* *4 credits*

A survey of advanced methods of analysis using specialized apparatus. The analysis of alloys, ores and mixed salts is emphasized. 2 hour lecture and 6 hours lab. Prerequisites: Chem. 21 and 22.

126. *Organic Analysis* *3 credits*

A study of systematic classification and identification of organic compounds from their solubilities and group reactions, including the separation and identification of the components of organic mixtures. 2 hours lecture and 6 hours lab. Prerequisites: Chem. 101 and 102.

127. *Chemical Literature* *1 credit*

A study of the published source material of chemical science and chemical industry. The course includes practical instruction in library technique. One hour lecture.

132. *Undergraduate Research* *2 credits*

Individual study and research in connection with a specific chemical problem. The course taken with the permission of the Chemistry Department Staff. Prerequisites: Chem. 124, 126 and 127.

DEPARTMENT OF CLASSICAL LANGUAGES

Mr. Coleman, S.J., *Chairman;* Mr. Mann

The objectives of the classical department are: first, to develop in the student the ability to read easily and to compose readily in Latin and Greek; secondly, through the unrivaled discipline afforded by the tongues of Greece and Rome to train the student in habits of accurate observation, orderly procedure, analysis, logical and inferential thinking; thirdly, to develop the student's powers of appreciation and expression by a thorough study of the matchless artistry of classical literature; and finally to give him a comprehensive understanding of the human values of Graeco-Roman culture in both its pagan and patristic phases and of its profound contributions to modern civilization.

I. GREEK

1 & 2. *Elementary Greek* *6 credits*

A complete course in the fundamentals of classical Greek, with selected readings and composition work to illustrate the grammar.

3. *Xenophon* *3 credits*

Selections from the Anabasis furnish an eye-witness account of the march of the Ten Thousand through the Persian Empire.

4. *Plato* *3 credits*
The Apology and selections from the Crito and Phaedo are read. A study of one of the noblest characters of antiquity, his ideals and his effect on western thought.

5. *The Drama and Euripides* *3 credits*
A history of Greek drama from its origins to Euripides. A consideration of the canons of Greek drama as presented by Aristotle in the Art of Poetry. An evaluation of Euripides as poet, dramatist, and thinker as well as his place in the history of Greek culture through a reading of the Alcestis, Hippolytus and Medea.

21. *Demosthenes; Euripides* *3 credits*
Reading and idiomatic translation of the Olynthiac or Philippic Orations of Demosthenes. These are studied from the point of view of oratorical composition and as a presentation of the Greek ideal of freedom together with the causes leading to its collapse. The Alcestis of Euripides is studied with special attention being given to its literary significance and to the style of Attic drama.

22. *Demosthenes' Crown Oration* *3 credits*
The Crown Oration is studied as a model of rhetoric, with discussion of the classic schools of oratory. Special attention will be given to the history of Greece in its struggle against the onslaught of oppression.

23. *Sophocles* *3 credits*
This course offers a detailed study of Sophocles' Oedipus Tyrranus as a masterpiece of dramatic art, with an analysis of the structure, the spirit and the character delineation of Greek tragedy, and a discussion of the influence of Sophoclean style on modern drama.

101. *Plato's Republic* *3 credits*
A study of Greek thought; the soul, education, justice, government, the Ideas.

102. *Homer* *3 credits*
Selections from the Iliad and Odyssey with a comparative study of the Latin, Italian and English epics. A study of the Greek spirit revealed in its great epics.

103. *Aristotle* *3 credits*
Selected readings from the Ethics and Politics in which Aristotle's influence on western philosophy is carefully analyzed.

104. *New Testament Greek* *3 credits*
The linguistic peculiarities of koine Greek, with readings from the New Testament.

II. LATIN

1 & 2. *Elementary Latin* *8 credits*

An intensive review of the essentials of grammar and syntax with special emphasis on basic rules. Selections from the orations of Cicero with emphasis on classical style and sentence structure. Brief introduction to Latin poetry, with selections.

21. *Latin Poetry* *4 credits*

A detailed study of Cicero's Pro Archia Poeta as an eloquent defense of the literary spirit. Readings in the Aeneid with a comparative study of the great epics of other languages. Emphasis is laid on the poetic values of the work, on its presentation of the Roman spirit and on its abiding humanity.

22. *Horace, Catullus* *4 credits*

In reading the Odes of Horace and the poetry of Catullus attention is concentrated on two main points, development of the power to appreciate aesthetically the lyric beauty of the poems and a deeper understanding of the pagan attitude to life both in its virtues and its shortcomings.

31. *Roman Satire* *4 credits*

Horace and Juvenal interpret the life, manners and thought of their times: a revealing study of the unity of human nature in all times.
ment.

32. *Cicero: Rhetoric* *4 credits*

Cicero's Pro Lege Manilia and Pro Milone are studied from the standpoint of rhetorical analysis, special attention being given to the structure and development of these speeches as well as to the social and political problems of the declining Republic.

101. *Latin Comedy* *3 credits*

Reading and Idiomatic translation of one play of Plautus and one of Terence. Development and technique of play production in Rome. Lectures on Roman comedy, its relation to Greek drama and its influence on modern comedy. Plautus and Terence are contrasted not only as to point of view and literary style, but also as to the different groups for which they wrote.

102. *Tacitus* *3 credits*

Selections from the Annals and Histories provide an effective study of forceful style and a wealth of stimulating observations on the progress of empire.

103. *Roman Philosophy* *3 credits*

Readings from Cicero's Tusculan Disputations and Lucretius' De Rerum Natura to illustrate contrasting developments in Roman thinking. The course includes a brief survey of ancient philosophy.

104. *Patristic Latin* *3 credits*

The Confessions or City of God of St. Augustine, with selections from other Latin Fathers, will be read in a study of the development of Late and Christian Latin. The course includes a survey of early Christian thought and its reaction to contemporary paganism.

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Dr. Lennon, *Chairman*; Dr. Bourne, Mr. Lilly, Mr. Bartley, Mr. Driscoll, Mr. McNichols, Mr. Brown, Mr. Benson

The aims of the Department of Education and Psychology are: (1) to develop in the individual those professional qualities required for successful teaching; (2) to offer professional training for certification as a secondary school teacher; (3) to meet requests for specific courses by teachers in service; (4) to present a co-ordinated undergraduate program in psychology for the student interested in graduate work in psychology or related fields; (5) to aid in the professional development of teachers by presenting a well integrated program of graduate studies leading to the Master of Arts degree.

The Department of Education and Psychology passes upon the eligibility of each student who applies for teacher education.

Students in the Education Curriculum working for a college provisional certificate for secondary school teaching in Pennsylvania are required by the University to pass successfully Education 21, 104, 105, 106, 107 and 111 in addition to eighteen semester hours in each of two subject matter fields.

Practice teaching will be arranged for students who meet course requirements and have the other necessary qualifications:

(1) A general academic record of at least C.

(2) A quality point average of 1.5 in the student's teaching fields.

(3) Approval of applicants by respective department heads.

(4) Evidence of good personality.

(5) Competence in both written and oral English. Tests may be administered.

21. *Introduction to Education* *3 credits*

An orientation course for all students who plan to enter the teaching profession. Emphasis is placed upon the evolution of the public school system, democratic principles, objectives, curriculum, the learner, the function of the teacher and professional requirements.

101. *Special Methods of Teaching in High School* *3 credits*
The selection and organization of content of high school courses and the psychology and special methods of instruction for the various subject matter fields.

A. Methods of Teaching of Social Studies.
B. Methods of Teaching English.
C. Methods of Teaching Modern Languages.
D. Methods of Teaching Science.
E. Methods of Teaching Mathematics.

102. *Introduction to Personal Hygiene and Public Health* *3 credits*
This course is designed to give an understanding of the problems of personal hygiene and the care of the body, of the nature of disease and the principles of disease prevention. It considers the more common communicable diseases as to cause, mode of transmission, methods of control and prevention. The problems of alcoholism, narcotics, immunity, control of food and water supply, sewage disposal, and public health administration are also discussed. Three hours lecture and demonstration. No prerequisites.

104. *History of Education* *3 credits*
A survey of educational development from primitive times to the present. The aim of the course is to trace the development of present tendencies from primitive society, Greek and Roman education, the Renaissance and the changes induced by realism, philanthropic education, the psychological and scientific movements. Contributions to modern educational practice are noted.

105. *Principles and Techniques of High School Teaching* *3 credits*
A secondary school methods course emphasizing principles and methods of teaching such as socialized recitation, project and problem methods, visual instruction, differentiated instruction and assignment. Classes are observed in progress, and classes are taught in laboratory practice. Prerequisites: Education 21 and 111.

106. *Tests and Measurements* *3 credits*
A practical course giving the history of the testing movement, general principles and criteria of measurement and evaluation. Practice is afforded in the construction of different forms of test questions. A limited presentation of fundamental statistics is taught for the correct handling of test data.

107. *Observation and Practice Teaching* *6 credits*
Observation and study of classroom teaching are combined with actual student teaching under expert supervision. Group conferences and personal interviews are held frequently with the supervisor of practice teaching. The student teacher is expected to take part in all school activities. Prerequisites: Education 21, 105, and 111.

111. *Educational Psychology* *3 credits*

An introductory course in educational psychology stressing growth and development, individual differences, intelligence, motivation, learning principles, transfer of training and educational measurement. Prerequisites: Psychol. 120 or Philos. 105.

113. *Audio-Visual Techniques in Education* *3 credits*

The state course of study is followed. All types of materials and pictures that can be used in teaching are studied. Picture projection is studied as a regular classroom procedure, and objective tests are constructed based upon educational films. Other visual aids stressed include school journeys, object-specimen models, charts, graphs, diagrams, maps. This course is required for permanent certification. Laboratory fee $2.50.

PSYCHOLOGY

120. *General Psychology* *3 credits*

An introductory course designed to acquaint the student with basic concepts of experimental psychology, emphasizing facts, principles and methods.

121. *Introduction to Experimental Psychology* *3 credits*

Lectures cover topics of sensation, perception, memory, reasoning. The student will perform experiments dealing with these topics in the laboratory. Lecture 2 hours; laboratory 2 hours.

122. *Applied Psychology* *3 credits*

Applications of principles from experimental psychology to industry, vocational guidance, education, business, selling, advertising, personnel practices, welfare and child study.

123. *Social Psychology* *3 credits*

A study of social aspects of personality; the development and manifestations of social awareness; suggestion, imitation, group behavior and the individual mechanisms of social adjustment.

GRADUATE-UNDERGRADUATE COURSES

The following courses in Education and Psychology are open to both graduate and undergraduate students:

150. *History of Philosophy* *2 credits*

The development of modern thought, from Bacon and Descartes, through Spinoza, Leibnitz, Hobbes, Locke, Berkeley and Hume to Kant and Hegel; Neo-Scholasticism and its relation to other contemporary philosophical movements.

150A. *The Philosophy of American Life* *2 credits*

A seminar aimed at the examination, free discussion and critical appraisal of the principles that underlie various practices and problems at the present time in American life.

1. Religion: Is America a religious country? Relation of Church and State. Religion and education.
2. Philosophy: The American philosophers; *e.g.*, Pierce, James, Dewey.
3. Political Philosophy: The supremacy of Natural Law and the will of the majority; individual freedom in the face of internal Communism; the policies of containment and liberation vs. world Communism.
4. Economic Philosophy: Private enterprise and the ideal of equality; the scope of collective bargaining; the welfare state and creeping Socialism.
5. Culture: Mass culture in democracy; censorship.

151. *Educational Statistics I* *3 credits*

Frequency of distribution, measures of central tendency, measures of variability, cumulative distribution, graphs, the normal probability curve are topics treated in this course. Frequent application is made to practical school situations.

152. *Educational Statistics II* *3 credits*

The topics treated in this course include: regression, correlation, partial and multiple correlation, errors of measurement, sampling errors, methods of prediction. (A study will be made of the use of I.B.M. card sorting and tabulating equipment in applying these statistical measures to experimental and normative survey types of research. Prerequisite: Ed. 151.)

153. *Mental Hygiene in Education* *2 credits*

This course is designed to provide an understanding of the student and his adjustive behavior in curricular and extra-class situations. Attention is given to factors that influence behavior, dynamics and motivation of behavior, varieties of adjustment and problems of reeducation. The selected illustrative material is of especial interest to the classroom teacher, supervisor and guidance counselor.

154. *Abnormal Psychology* *2 credits*

An eclectic viewpoint of most rational explanations of mental diseases is held throughout discussions of classification, psychoses, neuroses, alcoholism, psychopathic personalities and sensory disorders. Cultural and sociological factors are emphasized. Prerequisite: Education 153.

155. *Introduction to Guidance* *3 credits*

An introduction to the activities and techniques of the guidance program in public schools. Principles and problems of guidance are discussed, varied methods of conducting guidance programs are considered, and texts and workbooks used in high school guidance programs are used in preparing simple guidance lessons. Required for guidance teacher and counselor certificate in Pennsylvania.

156. *Research in Occupational Information* *3 credits*

A survey of the fields of work as listed in the U. S. Census and Dictionary of Occupational Titles, considering the requirements for entrance, duties, income, possibilities of advancement, etc. Techniques of assembling and developing occupational materials are discussed, methods of presenting such material to pupils are demonstrated. Each student will perform a number of job analyses, and will complete a project requiring knowledge of techniques of assembling occupational information. Required for guidance teacher and counselor certificate in Pennsylvania.

157. *Psychological Testing—Individual* *3 credits*

The principles of individual testing as applied to the Stanford Revision of the Binet or Wechsler-Bellevue Scales are discussed. Each student will be required to do a definite number of practice tests. Prerequisite: Ed. 208.

GRADUATE COURSES

The following courses are open only to graduate students:

200. *Survey of Scholastic Philosophy* *2 credits*

The purpose of this course is to give a brief but comprehensive review of philosophy with an explanation of some of the conflicting schools of thought. It includes a review of Logic, Epistemology, Ontology and Cosmology. Problems from conflicting schools include scepticism, Cartesianism, idealism, relativism, materialistic evolution and pantheism.

201. *Survey of Scholastic Philosophy* *2 credits*

This course is a continuation of Education 200. It includes Psychology, Natural Theology and Ethics. Problems from conflicting schools include mechanism, determinism, the problems of evil, Kantian imperatives, socialism and communism.

202. *Educational Research* *2 credits*

Topics of this course include the selection and definition of the problem, evaluation and collection of evidence, methods of research, treatment and interpretation of the material, research reporting, essay and thesis writing and evaluation of educational research. Required for the Master's degree.

203 & 204. *Advanced Educational Philosophy* *4 credits*

This course provides a philosophical consideration of the rights and duties of the child, the parent, the school, and society. The true aim of education in a democratic society is outlined, and the outstanding false and inadequate systems of education are examined and criticized. It presents and attempts the solution from a philosophical point of view of some of the problems touching curricula, organization, administration and methods of teaching. Required for the Master's degree.

205. *Comparative Education* *2 credits*

The method of this course is both historical and philosophical. Consideration is given to the major characteristics of life, government and culture in western nations and to their effects upon the theory and practice of education. Attention is paid to the mutual interaction between these cultures and educational systems. The educational program of a democracy is compared and contrasted with those of the non-democratic nations. Prerequisite: Advanced Educational Philosophy.

206. *History of Secondary Education in the United States* *2 credits*

Topics considered in this course include: The grammar school of the seventeenth century, the academy of the eighteenth century, the modern high school, coeducation, manual training and vocational education. Other subjects treated are: the report of the Committee of Ten and the various studies for the reorganization of secondary education. Modern experiments, evaluative procedures and results are reviewed. The junior and senior high schools and the junior college movement are discussed.

207. *A History of the Problems in Education* *2 credits*

This course treats of some of the unsolved problems of education in historical perspective, especially those that concern the curriculum, educational psychology, methodology, administration, supervision and teacher education.

208. *Educational Measurement* *2 credits*

This course is a study of the use and interpretation of the results of certain tests and scales. Consideration is afforded to central tendencies, variability, graphic methods, reliability and validity coefficients, item validity, scaled scores, test norms, variety and purposes of tests.

209. *Modern Trends in Teaching* *2 credits*

This course is designed for experienced teachers. After a discussion of traditional and current methods, study and opportunities for practice will be given in the subject-matter unit, the functional unit, and integration within and among subject areas. The New Pennsylvania program will receive special attention in order to improve coordination of the school and community.

210. *Secondary School Curriculum* *2 credits*

After a brief study of the principles of secondary education and of current problems in the field, consideration is given to methods of studying curriculum problems, the selection of subject matter in various fields, and principles of program construction. Special attention is given to the changing aims and purposes of the American secondary school and to current reorganizations, including work experience, vocational training and the junior college.

211. *Problems in Secondary Education* *2 credits*

This course is designed to aid the teacher in applying to secondary teaching the best principles of administration and organization in view of modern developments. Economy in the classroom, discipline, motivation, lesson-planning, supervised study, unit and project construction, teaching aids, examinations and evaluation procedures, records and reports will be the major topics treated.

213. *Extra-Class Activities* *2 credits*

This course concerns the place of student activities in the secondary school; their organization, stimulation and direction. Consideration is paid to the relationship of extra-class activities to the guidance program. Clubs, publications, assemblies, school councils, homerooms and athletic activities are studied.

214. *Advanced Educational Psychology* *2 credits*

A study of individual differences in abilities, achievement, attitudes, emotional and social traits of personality and the methods used by schools in adjusting to individual differences. The course also includes a consideration of the main theories of learning; educational implications of each theory and an attempted synthesis and application of learning principles.

215. *Child Development* *2 credits*

A study of the growth and development of the child from infancy to late childhood. Motor, intellectual, emotional and social development of the child will be studied with emphasis upon guidance in home and school.

216. *Adolescent Development* *2 credits*

The development of physical, mental, moral and social traits of adolescence with special reference to their bearing upon problems of instruction in junior and senior high schools.

217. *Special Abilities Testing* *2 credits*

A survey of the most commonly used aptitude tests in the school guidance program. After a consideration of the theories of aptitude testing, test criteria, standardization, techniques of administration, scoring and interpretation, students will administer, score and interpret tests of intelligence, interest and special abilities. Each student will complete a project involving interpretation of test data in a guidance situation. Prerequisite: Education 208.

218. *Counseling Methods* *2 credits*

How the counselor works. Consideration of counseling methods including observation, rating scales, autobiography and techniques of interviewing. Attention is paid to problem areas in the secondary school, analysis of pertinent information with emphasis upon practical problems and their solution. Use of records as a counseling device. Prerequisite: Education 208.

219. *Development of School Guidance Programs* *2 credits*

An analysis of the techniques and problems involved in organizing and developing guidance programs with particular emphasis on secondary school guidance activities. Varied types of guidance systems will be discussed and adaptation of these to local needs will be considered in project assignments. Prerequisite: Education 155.

220, 221, 222, 223. *Thesis Seminar* *2 to 6 credits*

Designed for students who are now or will shortly be working on their theses. Registration is only with permission of the student's advisor. A candidate who does not complete the thesis in one seminar may be required to take one or two additional thesis seminars.

225. *Techniques of Social Case Work and Recording* *2 credits*

Social case work as a technique of study, diagnosis and treatment of personality adjustments. Course includes the nature and techniques of case work, interviewing methods, the case history, methods of recording, the home visit. Discussions are conducted on case material centering on understanding the student, his problems and the role of the guidance counselor. Questions of confidentiality, use of authority-relationships and ethical problems are considered.

250. *Ethics and Modern Social Problems* *2 credits*

The purpose of this course is a free discussion of philosophical principles as they apply to current social questions. The content includes a) Marriage: selection of a partner, impediments, divorce, birth control, domestic authority and education; b) State: its nature and purpose, law, economic order and social legislation; c) International Society: rights and duties of nations, war, world government. Prerequisites: Education 210 and 211.

260. *Secondary School Management* *2 credits*

This course is designed for principals, department heads, supervisors and experienced teachers in secondary schools. It focuses attention on the principles and problems of democratic school management and improvement. It considers such techniques as analysis of classroom procedure, conferences, demonstrations, teachers' meetings and co-operation with the community. Students are encouraged to base class projects and papers upon problems from their own school systems. Prerequisites: Three or more years of teaching experience; Education 209; Education 210 or 211.

270. *Advanced General Psychology* *2 credits*
A comprehensive review of facts, principles and methods of experimental psychology basic to an understanding of the applied courses: child, adolescent, educational, mental hygiene and abnormal psychology, etc. Included are discussions of experimental findings on sensation, perception, nervous system, physiological, psychological factors in personality, emotions, intelligence, memory.

271. *Measurement of Attainment* *2 credits*
A course devoted to the use of tests in guidance, counseling, pupil diagnosis, grading, class analysis, measuring learning efficiency, etc. There is also a treatment of appropriateness of selection of tests at certain grade levels, methods of administration, evaluation of achievement and marking systems. Prerequisite: Ed. 208.

272. *Measurement of Interest and Personality* *2 credits*
A course supplementary to Special Abilities Testing and Measurement of Attainment that considers the instruments commonly used in the school guidance program to evaluate those aspects of interest and personality important in the counseling situation. Rating scales and questionnaires will be studied intensively with opportunity offered to the student to administer, score and interpret the results. Projective techniques will not be stressed in this course because of their specialized nature. Prerequisite: Ed. 208.

273. *Community Social Agencies* *2 credits*
A study of the types of health, welfare and recreational services and agencies in the local community of both a governmental and voluntary nature, eligibility for services, types of treatment available, referral procedures, fees, liaison between home, school and agency; the role of the guidance counselor and social worker, the role of the community chest and the welfare council. Programs of financial assistance as they relate to children such as general relief, Aid to Dependent Children, Social Security benefits, veterans benefits, etc., will be analyzed. Course work will be supplemented by lectures by representatives of various agencies.

274. *Group Guidance* *2 credits*
A consideration of the techniques of conducting group discussions and informational activities which form an integral part of the school guidance program. The course is designed to furnish prospective counselors with an introduction to group guidance methods, and an opportunity to try out these methods under supervision in class. Prerequisite: Ed. 155.

275. *Supervised Counseling Practicum* *2 credits*
Practice counseling with high school and college students under supervision. Time is devoted to the application of guidance principles in case conferences; provision is made for on-the-job training in using counseling techniques. Four class hours weekly. Prerequisite: acceptable background and training. Admission only by consent of the instructor.

DEPARTMENT OF ENGINEERING

Mr. Plonsky, *Chairman*; Mr. Rist

The objective of the Engineering Department is to introduce the student into the highly technical training necessary for all phases of the Engineering Profession.

5. *Perspective Drawing* *3 credits*
The development of the elements of descriptive geometry into a detailed study of the various methods used in making a mechanical perspective drawing. Also professional short-cuts, casting of shades and shadows and mirror reflections used in mechanical drawing are presented. Prerequisite: Engin. 4.
Evening

6. *Principles of Home Construction* *3 credits*
The study of housing from primitive to the present. Particular emphasis is placed on practical aspects such as how to gauge value in a building and what constitutes good construction. Various methods of heating are examined; plumbing and electrical requirements are analyzed. Examples of orientation, (the placing of the room with respect to the sun), are presented. The effective employment of color is studied.
Evening

7. *Architectural Drawing* *3 credits*
A practical introductory course emphasizing the technical elements of architectural drafting. Basic room plan layouts are presented with detailed study of carpentry, masonry, doors and windows. Stress is laid upon correct architectural technique, symbols of lettering used in plan layouts.
Evening

8. *Architectural Drawing* *3 credits*
An advanced course consisting of the study, with detailed drawings of stairs, fireplaces, walls, glass brick, insulation, heating, plumbing and electrical wiring. A complete set of plans incorporating these various parts concludes the course. Prerequisite: Engin. 7.
Evening

13. *Mechanical Drawing* *3 credits*

The use of drawing instruments is applied to the drawing of orthographic views of objects, isometric and oblique drawings, sectional views, conventional and semi-conventional representation of screw threads, auxiliary views, tracings on tracing paper and tracing cloth. Freehand sketching of objects in orthographic projection is also presented. Conventional mechanical lines as well as the art of good lettering is stressed in all plates. Nine hours drafting room practice.

21. *Engineering Mechanics* *4 credits*

This course is devoted to the study and analysis of various types of force systems; resultants and conditions of equilibrium; stress analysis of the parts of different types of structures by graphical and analytical methods; frictional forces; centroids and moments of inertia of areas and solids. Prerequisite: Physics 18; Corequisite: Math. 21.

22. *Engineering Mechanics* *4 credits*

Kinematics of particles and rigid bodies which includes linear, curvilinear, angular and relative motions; inertia forces, impulse momentum, work, energy and power considerations of mechanics; mechanical vibrations. This course is designed for both engineering and physics students. Prerequisite: Engin. 21; Corequisite: Math. 22.

23. *Plane Surveying* *3 credits*

While being introduced to the theory of plane surveying the student will be given the opportunity to familiarize himself with the Dumpy and Wye levels, several makes of transits, their use, care and adjustment. The methods demonstrated and used will be: the differential and reciprocal methods of leveling, the stadia method of measuring distances, the calculation of the true bearing of a course from observations on the sun and the staking out of simple highway curves as well as the location of buildings and underground and overhead utility lines. In addition, the tangent method of plotting a traverse, including contour lines and other pertinent information necessary for the completion of a map will be considered. 1½ hours Lec. and Rec. 4½ hours Laboratory.

24. *Descriptive Geometry* *2 credits*

The geometric method of projection of points, lines and planes and the application of these methods to graphical solution of engineering problems involving lines, planes and solids; truncations and intersections of solids leading to the development of surfaces and traces of perspective views. The rules of drafting room practices are continued regarding lettering and conventional lines. One hour lecture, six hours drafting room practice. Prerequisite: Engin. 13.

25. *Engineering Materials* *3 credits*

This course is changed to acquaint the students with the materials that are used in engineering construction and fabrications; their manufacture, properties, methods of testing, uses and limitations. This subject includes not only metals but also plasters, wood, rubber, glass, adhesives, corrosion and protective coverages. Prerequisite: Chemistry 2.

31. *Engineering Electricity* *4 credits*

A treatment of fundamental principles of direct current and magnetic circuits and the application of these principles to the theory and performance of direct-current machinery which includes not only motors and generators but also the associated control apparatus and measuring equipment. Classroom instruction is supplemented by experimental work in the electrical machinery laboratory. Corequisite: Physics 20.

32. *Engineering Electricity* *4 credits*

A treatment of fundamental principles of alternating current circuits, including three phase circuits, and the application of these principles to the theory and performance of alternating current machinery such as generators, motors, transformers, rectifiers, measuring instruments. An introduction to electronic tubes and circuits is also presented with basic applications in rectifiers, amplifiers, oscillators. Classroom instruction is supplemented by experimental work in the electrical engineering laboratory. Prerequisite: Physics 20.

DEPARTMENT OF ENGLISH

Fr. Grady, S.J., *Chairman*; Mr. Cullather, Miss Durkin,
Fr. Kelly, S.J., Mr. O'Leary, Fr. McConnell, S.J.

The aim of the Department of English is to furnish the student with a balanced course in English which will realize the objectives of a liberal arts college. The course is planned to train the student to read, write and speak English as effectively as possible and encourage him to appreciate more deeply the artistic creations of the English language. All candidates for the degree will be required to take courses 1-2, 3-4, and 23-24. The remaining courses are offered as electives for those who have satisfied the requirements of the basic courses.

1 & 2. *College Composition and Introduction to Literature 6 credits*

This course is designed to increase the college student's mastery of the techniques of communication in English, to introduce him to the general types of western literature; and, by stimulating his imagination and observation, to develop his skill in vital expression, oral and written. Lectures, discussions and required exercises.

3 & 4. *Public Speaking* *2 credits*
The principles of oral expression; enunciation, pronunciation, emphasis, interpretation; together with the elements of argumentation, the preparation and presentation of formal and informal speeches.

23 & 24. *Development of Literary Forms* *6 credits*
This course is designed to acquaint the student with the tradition of English literature, tracing its development from the early verse sagas through the Elizabethan period; and from the Elizabethan period to the present. It aims to develop a critical appreciation of literary forms, particularly in drama, biography, the essay, and oration. Lectures, discussions and required exercises.

101. *British Literature of the XVIIth Century* *3 credits*
A critical and appreciative study of the literary work of the writers of the Jacobean and Restoration period, including Donne, Crashaw, Herrick, Sir Thomas Browne, Jeremy Taylor, Bunyan and Milton.

102. *British Literature of the XVIIIth Century* *3 credits*
A critical and appreciative study of the writers of the Neo-classical period, including Samuel Johnson, Goldsmith, Burke, Walpole, Boswell, Pope, Swift, Sheridan, Addison and Steele, Gray, Thomson, Cowper and Blake.

103. *British Literature of the XIXth Century,*
(a) The Romantic Period *3 credits*
A critical and appreciative study of the writers of the "Age of Romanticism" in British Letters: Wordsworth, Coleridge, Shelley, Keats, Byron, Scott, DeQuincey, Charles and Mary Lamb, Landor, Leigh Hunt.

104. *British Literature of the XIXth Century,*
(b) The Victorian Era *3 credits*
A critical and appreciative study of the writers of the Victorian period, including Tennyson, the Brownings, the Brontes, Carlyle, Newman, Macaulay, Thackeray, Dickens, Matthew Arnold, Ruskin, Swinburne.

105. *American Literature to 1900* *3 credits*
A survey of the development of the body of distinctively American Letters through the XVIIIth and XIXth centuries, with special emphasis on Hawthorne, Irving, Cooper, Melville, Whitman and the Concord Poets.

106. *American Literature after 1900* *3 credits*
A survey of the maturer and more nationally conscious American Literature which emerged after the World War I, particularly in the works of Wolfe, Hemingway, Cather, O'Neil, Frost, Robinson, Faulkner, Sinclair Lewis, et al.

107. *The Novel in English*: (*a*) *Chaucer to Scott* *3 credits*
A study of the development of the novel form in the English language, British and American, from Chaucer to Scott.

108. *The Novel in English*: (*b*) *Dickens to the Present* *3 credits*
A study of the major novelists, British and American, from Dickens to the present, with attention to the evolution of the novel as a social commentary.

109. *The Forms of Drama*: (*a*) *Aeschylus to Ben Johnson* *3 credits*
A study of the development of dramatic forms from the Greek classic through the miracle and morality play to the fluid plays of the Elizabethan era.

110. *The Forms of Drama*: (*b*) *Sheridan to Shaw* *3 credits*
A study of the dramatic forms that developed after the Elizabethan period, emphasizing the development of the "problem play" after Ibsen, and the growing attempts to "break through the proscenium" and widen stage horizons.

111. *Shakespeare*: *Tragedies* *3 credits*
A critical and apppreciative study of five major tragedies and of five of the principal chronicle plays.

112. *Shakespeare*: *Comedies* *3 credits*
Critical and appreciative study of the major comedies and of the comic sequences in the chronicle plays.

113. *Medieval English Literature, 1000-1400* *3 credits*
A study of the historical, social and literary background with emphasis on the works of Chaucer. (For selected advanced students majoring in English).

114. *Principles of Literary Criticism* *3 credits*
A study of the theory of literary criticism and the principles of literary aesthetics, from Aristotle and Longinus to the present.

115. *Journalism* *3 credits*
A survey of the history and development of modern journalism; journalistic terminology; newspaper writing; publicity, advertising copy, news-reporting, feature and editorial writing. Newspaper and magazine editorial organization. Headline writing.

116. *Journalism* *3 credits*
The preparation of news-copy; editing copy for publication; preparation of feature and special articles; editorials and editorial policies; newspaper and magazine layout. Prerequisite: **English 115.**

117. *Creative Writing Seminar* *3 credits*
Group conferences and discussions of the techniques of writing for publication: fiction, poetry, playwriting, biography. Critical discussion of work of seminar members. For selected advanced students only, who have shown superior ability in creative expression.

120. *Critical Approaches to the Communication Arts* *3 credits*
A discussion of the philosophical basis for critical appreciation of modern literature and the media in which it is presented: publishing, motion pictures, radio and television; and an evalution of the criticism of these media as presented in professional literary magazines and reviews. Use is made of recordings of plays, music; and of attendance at selected theatrical presentations and concerts, radio performances.

121. *Contemporary Poetry* *3 credits*
A survey and study of major contemporary poets, including T. S. Eliot, Auden, Spender, Macleish, Aiken.

DEPARTMENT OF HISTORY AND POLITICS

Dr. Walton, *Chairman*; Mr. Brown, Mr. Langan, Mr. Scully

HISTORY CONCENTRATION

For the History Major the Department Aims: (1) To contribute to the culture and development of the student; (2) to encourage the student to approach the subject along the lines of solid historical methodology in his investigation, determination and reconstruction of data; (3) to present history as the study of human activities and concrete events which have social significance; (4) to demonstrate that the content constitutes a body of knowledge the parts of which are interdependent because of causal relations; (5) to bring to the student an intelligent and critically sympathetic understanding of his own and other people's civilization and culture. The Department does not aim to make specialists; rather it aims to give a comprehensive understanding of basic historical trends. At the end of his sophomore year the student desiring to major in History will consult with the Chairman of the Department who will review the applicant's qualifications and assist in the selection of a faculty adviser.

Prerequisites: For the History major History 1-2, 3-4, plus eighteen credit hours from upper division courses for a total of thirty credit hours. The Department strongly recommends History 103-104, 108-109, 114-115, and 107 or 119 as the courses best designed to give the student that comprehensiveness of understanding which constitutes one of the major aims of the Department.

Pre-Legal students working in History and allied fields are urged to follow History 122-123, 129-130, Pol. Sci. 101-102, and 105, and courses in Business Administration numbered 1-2, 103-104, 126.

Under certain circumstances and with prior approval of the History and Politics Department credits toward a History major may be earned in Philosophy 113 and 114 and in Economics 102 and 104.

1 & 2. *Political and Social History of the United States* *6 credits*
A fundamental study of the history of the United States from the time of its European beginnings to the present, with special emphasis on the history of Pennsylvania. The first semester will analyze the period from our colonial origins to the end of the Civil War. The second semester will deal with the period of Reconstruction to our own times. Required of all students for any degree from the University. This course also meets the requirements of the State for public school teaching.

3 & 4. *History of Modern Europe, 1500 to the Present* *6 credits*
A fundamental study of European history with main concentration upon the political aspects of European development. First semester: from the period of the rise of national monarchies to the Congress of Vienna. Second semester: from 1815 to the present. Continued emphasis will be placed on political developments but the significance of industrialism, the new nationalism and liberalism will be noted.

101 & 102. *The Western Hemisphere* *6 credits*
A survey of our American neighbors emphasizing their relationship to the United States. First semester: Latin America—discovery and exploration; the colonial empires; independence movements; political and socio-economic developments in the national period; ABC powers in world affairs; Pan Americanism and the Good Neighbor policy. Second semester. Canada—discovery and exploration; Anglo-French rivalry; British Canada; War of 1812; rebellion, Lord Durham report and self-government; the federation move; Dominion government; national political and socio-economic developments; the Statute of Westminster.

103 & 104. *Development of American Civilization* *6 credits*
An analysis of leading economic, social and cultural aspects of American life. First semester: study of the economic, religious and intellectual bases of colonial American life; impact of the Revolution; development of town and country life; sectional differences; the first factories and labor movements; growth of democracy and the reform movements. Second semester: study of the leading economic, social and cultural factors which shaped modern life and institutions since 1865. Among the topics treated are the growth of industry, agriculture and the agragian discontent; the disappearance of the frontier; labor and immigration; sport, literature and the arts; religious tendencies; diffusion of knowledge.

105. *The United States in the Twentieth Century* 3 *credits*
An intensive study of American development from 1900 to the present. Stress will be placed on the Roosevelt Era and its Progressivism, Wilson's New Freedom, diplomacy of the first World War, the return to "normalcy," the Great Depression and the New Deal, Roosevelt and world politics, and origins and consequences of World War II.

106. *History of Pennsylvania* *3 credits*
A study of the political economic and social factors in the history of the commonwealth from colonial times to the present.

107. *Co-ordinating Seminar in American History* *3 credits*
Intensive readings and reports on selected problems in American history. In all discussions an attempt will be made to integrate information in such terms as will give a unified picture of American life and institutions. Open only to Seniors working in History or by special permission from the Chairman of the Department. Normally History 1 & 2 and twelve additional credits from courses 120 to 126 and from co-related program course numbers 120 to 126 inclusive will be prerequisites.

108 & 109. *Development of Contemporary Civilization in Western Europe* *6 credits*
An analysis of the major economic, social and cultural aspects of European life since 1500. First semester: impact of the Protestant Revolution on European society; decline of medieval religious and economic unity; commercialism and the bourgeoisie; the intellectual revolution; antecedents of the French Revolution. Second semester: liberalism and reactions; fruits of the industrial revolution; march of the new sciences; socialism and communism; nationalism and imperialism; the twentieth century inheritance.

110. *French Revolution and Napoleonic Era* *3 credits*
First quarter: historical antecedents of the Revolution; the Philosophies; republicanism and the fall of the monarchy; Reign of Terror; France and Europe; the Directory. Second quarter: rise of Napoleon; the Consulate; internal achievements; intervention in Europe; significance of the Spanish and Russian campaigns; War of Liberation; Waterloo. Critical assessment of the period in the light of modern trends.

111. *Europe in the Nineteenth Century* *3 credits*
The Congress of Vienna and the European restoration; the rise of national sentiment and its expression in revolutions; the Industrial Revolution and its social, political and colonial consequences. The unification of Italy and Germany; Russia; Mediterranean politics and the Eastern Question; international alliances and rivalries.

112 & 113. *Ancient History* *6 credits*

A survey of the culture and civilization of the Mediterranean World to the end of the barbarian invasions.

114 & 115. *Medieval History* *6 credits*

A survey of medieval political and religious institutions. First semester: the origins and diffusion of Christianity; the contribution of imperial Rome; the emergence of political authority after the invasion and settlement of the barbarians; the spread of learning under monastic influence; the role of the Papacy; the achievements of the Crusades. Second semester: Decline of the Eastern Empire; the Holy Roman Empire; the Church in the period of Innocent III, the Renaissance of the twelfth and thirteenth centuries; the decline of medieval Europe before the secularization of thought in the field of politics, economics and religion.

116. *Renaissance and Reformation* *3 credits*

An intensive study of Europe from the fourteenth to the middle of the seventeenth century. First quarter: study of humanism, the new wealth and the bourgeoisie; breakdown of medieval unity. Second quarter: the causes of the Protestant Revolution; Luther, Henry VIII, Calvin. The Catholic Reformation, religious wars, Peace of Westphalia.

117 & 118. *History of the Far Eastern People* *6 credits*

A survey of the oriental world with special emphasis on China and Japan. First semester: origins of the Chinese people; their relations to their eastern neighbors and the Western Powers; the Ch'ing dynasty; revolutionary China: the two World Wars; problems of contemporary China. Second semester: origins of the Japanese people, eastern relations; the Tokugawa Shogunate and its importance; American penetration 1853-4; Meiji Reforms; Japanese militarism; problems of contemporary Japan.

119. *Co-ordinating Seminar in European History* *3 credits*

Open only to Seniors working in History or by special permission from the Chairman of the Department. Intensive readings and reports on selected problems in European History. In all discussions an attempt will be made to integrate information in such terms as will give a unified picture of European institutions and their development. Normally History 3 & 4 and twelve additional credits from courses History 108-118 and co-related courses numbered 127 to 132 inclusive will be required for admission.

POLITICAL SCIENCE

For the Political Science major the Department aims to accomplish the following objectives: (1) to give the student a thorough understanding of the nature and purposes of civil society; (2) to impart a sound knowledge of the philosophical basis of democracy; (3) to enable him to appreciate the problems

of his own government at work and (4) to relate the American system to the governments of other states in the international community.

The aim is not to make specialists but to assist in the acquisition of a sound core of fundamental knowledge upon which can be built the basis of both good citizenship and good scholarship.

For the MAJOR: *Political Science 101-102, 105-106, 124-125, and 131-132 is the prescribed program for a total of 24 credits minimum.*

For the MINOR: *Political Science 101-102, 124-125 plus six additional hours for a total of eighteen credits.*

101 & 102. *American National Government* — *6 credits*

The course will begin with a philosophical analysis of such basic terms as society, state, authority and common good. Forms of government will be contrasted and evaluated. The structure, operations and functions of the three branches of the national government will then be studied.

105. *State Government* — *3 credits*

A general survey of the natural constitutional position of the states and the changing federal-state relationships will precede the detailed analysis of state governments in actual operation. Emphasis will be placed on Pennsylvania and actual problems of procedure and policy will be used to illustrate general trends in state governments.

106. *Local Government* — *3 credits*

Types of local government, evolution of the American township, county, borough and city from English prototypes; participation in local government and politics as a training school for democracy; constitutional and statutory limitations on local governments; efforts to preserve "home rule"; functions of local officials; budget, personnel, local taxation and assessment, purchasing, indebtedness, suggestions for improvement in structure and operation of local governments, especially those of Pennsylvania.

107. *Public Administration* — *3 credits*

Nature of public administration; structures and limitations imposed through legislative statutes and apppropriations; staff organization and flow of command; employment policies, personnel training and management; employee organization; public relations.

108. *Political Science* — *3 credits*

A survey of the variety of functions, forms and mechanisms of civil societies at all levels in their economic, cultural, and historical settings with a view to deriving generalizations helpful toward directing the state and its subsidiaries in the most appropriate and efficient manner toward their appointed ends.

109 & 110. *International Law and Organization* *6 credits*

This course examines the rules which govern nations in their legal relations one with another. Particularly stressed will be the international norms governing recognition of new states, neutrality, treaties, diplomatic officials, the position of aliens, belligerency, citizenship, etc. The second half of the course will deal with the efforts of nations to set up a satisfactory structure of international organization and will stress the League of Nations and the charter of the United Nations.

THE CO-RELATED PROGRAM

The following courses are specifically designed to integrate the History and Political Science core programs and may be taken for credit toward the major and minor in either field of concentration.

120 & 121. *American Diplomatic History* *6 credits*

First semester: survey of the origins and development and functions of the State Department and its relation to other policy-forming agencies of the federal government. Diplomatic activities prior to 1789; the Louisiana Purchase; War of 1812; the Monroe Doctrine; Manifest Destiny. Second semester: Pan-Americanism, Cuba and the Caribbean, World War I; problems in the inter-bellum period; today's challenges and attempted solutions. United Nations Organization.

122 & 123. *American Constitutional and Legal History* *6 credits*

First semester: the historical background of the federal constitution; legal disputes and theories of colonial and revolutionary periods; the nature of the Constitution and its interpretation by Marshall and Taney. Second semester: constitutional problems occasioned by the Civil War; the new amendments; the expansion of federal powers. State constitutions, powers and activities in relation to the federal constitution. Key cases will be analyzed in detail and set in their proper historical perspective.

124 & 125. *History of American Political and Social Thought* *6 credits*

An inquiry into the major philosophies which helped shape our institutions. First semester: Puritan concepts of liberty, property, and representation; views of the Independents; pre-Revolutionary society and thought and the growing adherence to the notion of independence; the Constitution as it represents a compromise between the conservative and liberal traditions; Jeffersonian and Jacksonian democracy; social, economic, and political ramifications of the slavery question. Second semester: triumph of the nationalist view and its implications; recent tendencies; the problem of liberty in the complex, highly technical American society.

126. *The Political Parties of the United States* *3 credits*

An analysis of the origins, nature and functions of parties under our American system of government; the English tradition of the party system; differences between the English and American concepts. Jeffersonianism versus Hamiltonianism; sectionalism and pressure groups; splits in party organization prior to the Civil War; impact of the new industrial order on political alignments; the role of third parties in the United States; current stresses and strains on both major party organizations.

127 & 128. *History of European Political and Social Thought* *6 credits*

An inquiry into the major philosophies which helped shape European institutions. First semester: from Plato to the Sixteenth Century, with attention to the Greek philosophy of man and political society, the Stoics, medieval theory, especially that of St. Thomas Aquinas; the Legists. Second semester: modern conceptions of man and political society with special emphasis on contemporary notions of law, sovereignty, equality and human rights. Intensive reading in writings of representative thinkers of each period.

129 & 130. *Constitutional and Legal History of Great Britain* *6 credits*

The course will study the development of constitutionalism against the political background. First semester: the coalescence of Anglo-Saxon and Norman institutions, the Great Charter and the concept of representation; development of the common law; origins and growth of parliament. Second semester: developments since 1688; the House of Commons; parliament versus royal prerogative; cabinet and ministerial responsibility; Parliamentary Bill of 1911; extension of administrative law and adjudication; Statute of Westminster.

131 & 132. *Governments and Peoples in the Contemporary World* *6 credits*

A solid survey will be made of the major governments of the western world and of the relationships between government and governed in the international sphere, and between government and governed in the national sphere. Russia, Germany, Italy, France, Great Britain, and the United States will be the countries treated most adequately. First semester: study of the machinery by which the affairs of various foreign countries are conducted; national foreign policies; the structure of Europe after World War I. Second semester: Totalitarianism versus democracy; problems of empire and dependent peoples. Special attention will be given to the role of the United States in world affairs.

GRADUATE COURSES IN HISTORY

200. *Major Trends in American Historiography* *2 credits*

Special consideration will be given to those American historians who typify the strictly "political" approach to history and to the writers who best illustrate the break from that tradition.

202. *Contemporary Problems of American Foreign Policy* *2 credits*

Problems will be selected which illustrate the processes of adjusting a national policy differences through diplomatic and organizational means. The problem of security will receive special attention.

204. *Party Government in the United States* *2 credits*

A historical survey of the rise of the American party system will serve as an introduction for a detailed analysis of the nature, composition and organization of parties and pressure groups in the United States.

206. *The United States in the Twentieth Century* *2 credits*

An intensive study of American development from 1900 to the present. Stress will be placed on the Roosevelt Era and its Progressivism, Wilson's New Freedom, diplomacy of the first World War, the return to "normalcy," the Great Depression and the New Deal, Roosevelt and world politics, and origins and consequences of World War II.

208 & 209. *History of American Political Thought* *4 credits*

First semester: European influences on colonial American philosophy; controversy occasioned by the Revolution of 1776; Hamiltonian and Jeffersonian ideals at work; philosophical implication of the secessionist and slave controversies. Second semester: Triumph of the nationalist view; Social Darwinism and the American economy; twentieth century issues.

210 & 211. *American Constitutional History* *4 credits*

First semester: Emphasis will be placed on the bases of American constitutionalism, the Federal Convention, development of the judicial process, states rights, nationalism; constitutional issues which led to the Civil War.
Second semester: Study of the fourteenth amendment will initiate the second phase of this course. The impact of the new industrial capitalism on constitutional development will be thoroughly analyzed. Problems of imperialism, Federal centralization and civil rights will also be treated.

212 & 213. *Social and Literary Record of the United States Since 1865* *4 credits*

Major writers will be studied in the light of their influence on American social philosophy and practices.

214. *Problems in the History of American Foreign Policy, 1775-1861* *2 credits*

A detailed survey of the diplomatic problems of the United States before the Civil War. Emphasis will be placed on the factors of security and expansion as manifested in the Diplomacy of the American Revolution, Federalist Foreign Policy, the Louisiana Purchase, the War of 1812, the Monroe Doctrine, the Texas controversy and the boundary disputes with Great Britain.

215. *Problems in the History of American Foreign Policy, 1861-1921* *2 credits*

An analysis of the diplomatic problems of the later decades of the nineteenth century will serve as an introduction to policy of the United States as a World Power. Particular attention will be given to the diplomatic aspects of the Civil War, the extension of the Monroe Doctrine, the influence of domestic politics in foreign relations, the Venezuelan Boundary Dispute, the Spanish-American War, the Open Door in the Far East and the diplomacy of World War I.

216. *Development of American Civilization* *2 credits*

The leading economic, social and cultural factors which shaped modern life and institution since 1865.

217. *Colonial America to 1783* *2 credits*

European beginnings—the English settlements: colonial society and politics; the struggle for the Mississippi Valley; the War of Independence.

218. *The Civil War Period and Reconstruction, 1852-1876* *2 credits*

An analysis of the social, economic and political conditions that resulted in the struggle for Southern independence; the war years in the North and South. The postwar era will be studied to the election of 1876.

219. *Political and Social History of the United States, 1789-1828* *2 credits*

The course covers the political, economic and social history of the United States from 1789 to 1828.

220. *Political and Social History of the United States, 1828-1865* *2 credits*

The impact of Jacksonian democracy on American life, the impulse toward territorial expansion and the sharpening of regional clashes will receive special consideration.

221. *Contemporary European Problems I* *2 credits*

An analytical treatment of the political, economic and social problems of Europe, especially Western Europe since 1920. Topics are treated partly on a group basis and partly on an individual country basis.

222. *Contemporary European Problems II* *2 credits*

During the second semester special attention will be focused on the efforts to create an economically and politically viable European Union and to develop adequate defenses to counteract the Russian threat.

DEPARTMENT OF MATHEMATICS

Dr. Harper, *Chairman*; Mr. Bartley, Fr. McConnell, S.J., Mr. O'Connor, S.J., Mr. Savulis

The Department of Mathematics instructs students who are pursuing different courses of study and recognizes that the instruction must be adapted as much as possible to the needs of these students. For the Arts and Social Science students the objectives of the Department are: (a) to train the students in the basic and necessary skills of mathematics which will be required in nontechnical pursuits; (b) to bring out the cultural and applied values of mathematics; and (c) to show the dependence of other branches of knowledge on mathematics. In addition in the instruction of engineering and science students for whom mathematics is a tool subject the objectives of the Department are: (a) to develop skill and accuracy in mathematical operations; and (b) to familiarize the students with the methods of mathematical analysis. Finally for those students who show special aptitude for mathematics it is the objective of the Department to prepare them to pursue advanced work in this field.

1. *College Algebra* *3 credits*

Algebraic operations; methods of solving linear, quadratic and simultaneous equations; exponentials and logarithms. Mathematical induction, permutations and combinations; determinants.

2. *Plane Trigonometry* *3 credits*

Trigonometric functions of angles. Review of logarithms and solution of right triangles. Trigonometric identities; functions of multiple angles. Trigonometric laws and solution of oblique triangles.

3 *Analytic Geometry* *3 credits*

The fundamental properties of the conic sections and a brief introduction to the geometry of three dimensions. Prerequisites: Math. 1 and 2, or equivalent.

7 & 8. *Mathematics Survey* *6 credits*

A course particularly designed for the students who do not expect to take mathematics beyond the first year. The aim of the course is to present the major ideas in the development of mathematics from ancient to modern times. Suitable application of these ideas to the physical and social sciences is indicated throughout the course. The importance of mathematical concepts for, and their relation to Logic, Philosophy, Art, the natural and social sciences and the history of civilization are discussed. Its primary objective is to emphasize fundamental ideas of the science and to furnish a foundation for an appreciation of its wider significance.

11. *Algebra and Trigonometry* *3 credits*

An intensified course covering the topics of simultaneous equations, quadratic and higher order equations, complex quantities, exponents, logarithms; trigonometric functions, solutions of triangles, trigonometric laws. Three hours lecture and recitation.

12. *Trigonometry and Analytic Geometry* *3 credits*

A continuation of Mathematics 11 covering the topics of trigonometric identities and equations, inverse trigonometric functions; loci, straight lines, circles, ellipses and other conics; solid analytic geometry. Three hours lecture and recitation. Prerequisite: Math. 11.

13. *Engineering Mathematics* *4 credits*

An intensified mathematics course for engineering students covering the topics of simultaneous equations, quadratic and higher order equations, complex quantities, exponents, logarithms; trigonometric functions, solutions of triangles, trigonometric laws, identities and equations, and inverse trigonometric functions. Four hours lecture and recitation.

14. *Engineering Mathematics* *4 credits*

This course for engineering students covers the subject of Analytic Geometry and leads into Calculus. The subject matter includes: loci, straight lines, circles, ellipses and other conics; solid Analytic Geometry; and introductory treatment of the processes of differentiation and integration. Four hours lecture and recitation. Prerequisite: Math. 13.

21. *Differential Calculus* *4 credits*

Variables and functions; limits; differentiation; rates; applications of derivatives to geometrical and physical problems involving maxima and minima; differentials and a brief introduction to the process of integration; Rolle's theorem and the theorem of the mean; indeterminate forms; elementary treatment of partial derivatives and transformation of variables. Prerequisite: Math. 12, or equivalent.

22. *Integral Calculus* — *4 credits*

Integration as the inverse of differentiation; the definite integral; integration as a process of summation; approximate evaluation of integrals; integration by parts and other methods; reduction formulas; partial differentiation; total differentials and their geometrical interpretation; multiple integrals; use of integrals in the evaluation of areas, arc lengths, volumes, surfaces, fluid pressures, work, centroids and moments of inertia; infinite series and the approximate evaluation of functions by series. Prerequisite: Math. 21.

101. *Differential Equations* — *3 credits*

A treatment of ordinary differential equations. First order, first and higher degree differential equations; special solutions; linear equations with constant coefficients and with variable coefficients; total differential equations; operator methods; approximate solutions; applications of defferential equations to geometrical and physical problems. For Mathematics, Physics and other science students. Prerequisite: Math. 22.

102. *Vector and Tensor Analysis* — *3 credits*

The theory of vectors and their applications to the solution of mathematical and physical problems. Linear vector functions, and matrix applications. Elements of the theory of tensors. Prerequisite: Math. 101.

103. *Advanced Differential Equations* — *3 credits*

This course includes the treatment of special differential equations and partial differential equations and their applications. Non-linear differential equations; linear partial differential equations of first and higher order; non-linear partial differential equations of first and second order. Recommended for Physics and Mathematics majors. Prerequisite: Math. 101.

104. *Introduction to Statistical Analysis* — *3 credits*

Curve plotting; frequency curves, averages, measures of dispersion, theory of correlation. Applications to the natural and social sciences. Prerequisite: Math. 22.

105. *History of Mathematics* — *3 credits*

Treats of the development of Mathematics from earliest times through the Calculus. Prerequisite: Math. 22.

106. *Advanced Calculus* — *3 credits*

A critical study of the foundations of differential and integral Calculus; further study of the mean value theorem; series; representation of various functions in terms of power series; partial and directional derivatives of functions of several variables; space integrals, Green's and Stoke's theorems; elementary treatment of functions of a complex variable. For Physics and Mathematics majors. Prerequisites: Math. 22, Math. 101.

107. *Advanced Calculus* — *3 credits*

An introductory treatment of special types of series and integrals including elliptic integrals, Fourier series and functions, Gamma and Beta functions, Bessel functions, and further treatment of functions of a complex variable. Recommended for Physics and Mathematics majors. Prerequisite: Math. 106.

108. *Modern Algebra* — *3 credits*

An introduction to some of the simpler algebraic concepts. The number system and elementary theory of numbers. Groups, rings, polynomials over a field, matrices and determinants. Prerequisite: Math. 22.

109. *Theory of Equations* — *3 credits*

An introduction to the theory of solution of various equations. In addition the course tends to introduce the student to many of the concepts of modern algebra. Theory of determinants and matrices is applied early in the course. Prerequisite: Math. 22.

110. *Selected Topics in Advanced Mathematics* — *3 credits*

This course is designed particularly for the electronics majors. Laplace transforms applied to the solution of differential equations; power series; Fourier series; Bessel functions; functions of a complex variable; vectors; vector methods. Prerequisite: Math. 101.

115. *Undergraduate Mathematics Thesis* — *Variable credit*

For those who apply for the B.S. Degree with a major in mathematics. To evaluate the student's ability to carry out the investigation of a specific mathematical topic. The credit value will be one or two credits depending upon the results accomplished and time involved. Prerequisite: 24 credits in mathematics.

UNDERGRADUATE-GRADUATE COURSE

160. *Advanced Applied Mathematics* — *3 credits*

This course is designed to prepare the engineer and physicist to handle problems arising in connection with electrical, electronic, mechanical and other systems. Selected topics from the following branches of mathematics are to be included: differential equations; operator methods of solving differential equations; Laplace transforms and their application to differential equations; mathematical series; special mathematical functions arising in physics and engineering.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS

Lt. Col. Robbins, Jr., *Chairman*; Capt. Bunce, Major Egal, and military staff

The R.O.T.C. instruction is divided into a Basic Course (Freshman and Sophomore years) for which eight academic credits are allowed, and an Advanced Course (Junior and Senior years) for which twelve academic credits are allowed. The enrollment in each course is for a period of two years. Having enrolled in a course a student is required to complete that course as a prerequisite for graduation, unless he is excused from the requirement by authority of the Secretary of the Army. Enrollment in the Advanced Course is limited to students who have successfully completed the Basic Course, or are veterans of the Armed Forces, and are selected for continuance in the R.O.T.C. by the President of the University, upon recommendation of the Professor of Military Science and Tactics. Officer type uniforms and all military textbooks are supplied without cost to all students. In addition, each advanced student receives a monthly monetary allowance based on daily commutation of subsistence allowance, not to exceed 570 days during the two-year course. Advanced Course students (only) are required to attend a six weeks' summer camp, usually at the end of their Junior year in college.

1 & 2. *First Year Basic, Ordnance* — *4 credits*

Introduction to military science; military organization; military policy of the United States, National Defense Act and R.O.T.C.; evolution of warfare; maps and aerial photographs, individual weapons and marksmanship; first aid and hygiene; military problems of the United States; leadership, drill and exercise of command. 2 hours lecture, 1 hour drill each semester.

3 & 4. *Second Year Basic, Ordnance* — *4 credits*

Introduction to branch technique. This includes the role of Ordnance; automotive materiel; small arms materiel; ammunition materiel; artillery materiel; fire control materiel; leadership, drill and exercise of command. Prerequisite: M.S. 1 & 2, or equivalent advanced standing. 2 hours lecture, 1 hour drill each semester.

5 & 6. *First Year Advanced, Ordnance* — *6 credits*

A comprehensive study of functional organization of Ordnance Department; automotive materiel; small arms materiel; ammunition materiel; artillery materiel; fire control materiel; leadership, drill, and exercise of command. Open to sophomores and juniors. Prerequisite: M.S. 1 & 2, 3 & 4, or equivalent advanced standing. 4 hours lecture, 1 hour drill each semester.

7 & 8. *Second Year Advanced, Ordnance* — *6 credits*

A comprehensive study of the following: maintenance and supply; command and staff; combat intelligence; materiel specialty; military administration and

personnel management which includes military administration and military law and boards; military teaching methods; psychological warfare; geographical foundations of national power; leadership, drill and exercise of command. Prerequisite: M.S. 5 & 6. 4 hours lecture, 1 hour drill each semester.

DEPARTMENT OF MODERN LANGUAGES

Mr. Cimini, Dr. Kucas, Mr. McKenna, Fr. McSorley, S.J.

The Modern Language Department undertakes:

1. to give the student who plans to pursue studies in business, science, the arts or the professions the requisite skills for reading, writing and speaking foreign languages.

2. to train the student in logic and precision of thought and expression by comparative study of his own and foreign languages.

3. to develop the aesthetic and critical faculties of the student by the reading and appreciation of the best foreign authors.

4. to give the student an insight into the evolution of European thought and the history and culture of Europe as reflected in its literature.

5. To major in a Modern Language a minimum of 18 semester hours in upper division courses is required.

At the beginning of the first semester a placement test is given to students offering two years or more of high school credit in a modern language. Students passing this test will be admitted to the intermediate course in that language. Students failing in this test, and students admitted with less than two units in a language, are required to take the elementary course in that language.

French

1 & 2. *Elementary French* — *6 credits*

Aim: a solid foundation in grammatical principles and the mastery of a basic vocabulary. The course includes intensive drill in pronunciation, active use of vocabulary and grammatical principles in written and oral exercises, graded readings.

21 & 22. *Intermediate French* — *6 credits*

Aim: increased facility in the active use of basic grammar and vocabulary, enlarged reading ability, and an introduction to French civilization. The course includes grammatical review, written and oral composition, reading of selected modern prose of intermediate difficulty. Prerequisites: see introduction.

101 & 102. *Modern French Novel* — *6 credits*

A study of the various trends in modern French thought as developed by representative authors of the 19th and early 20th centuries. The following literary movements are studied: le Romantisme, le Realisme, le Naturalisme, le Symbolisme. Course conducted in French.

103. *Advanced Grammar and Composition* — *3 credits*

A review of French grammar emphasizing advanced topics and the idiomatic use of the language in set themes and free compositions, with the aim of developing the ability to write French clearly.

104 & 105. *The Classical Period* — *6 credits*

Authors of the 17th century are read and discussed. A study is made of the classical movement in French thought and culture, with emphasis given to such authors as Corneille, Racine, Moliere and Boileau. Course conducted in French.

106. *Modern French Theater* — *3 credits*

Plays representative of the development of the French theater throughout the 19th and early 20th centuries are read and analyzed. Course conducted in French.

107. *Modern French Poetry* — *3 credits*

The development of modern French poetry including le Romantisme, le Parnasse, le Symbolisme and contemporary poetry. Course conducted in French.

108. *French Conversation* — *3 credits*

A course designed to enable the student to express himself in French with clarity and fluency. Stress is placed on pronunciation, idiomatic use of the language, and practice in oral composition. Course conducted in French.

109. *The Catholic Revival* — *3 credits*

The growing body of Catholic thought in the literature of contemporary France. Reading and study of such authors as Bazin, Bordeaux, Bourget, Claudel, Maritain, Mauriac.

110 & 111. *History of French Literature* — *6 credits*

The main lines of the evolution of French culture as seen in the literature of the country from the twelfth century to the contemporary period, the whole studied against the background of the aesthetic, philosophical, political, social and economic development of European civilization in general.

112. *Undergraduate Research Thesis in French Literature* — *1 credit*

Open to students of proven ability in French. Assignment of the problem to be arranged in each case. Prerequisite: French 21 or equivalent.

GERMAN

1 & 2. *Elementary German* — *6 credits*

A complete course in the fundamentals of the German language. Emphasis on reading of graded texts, with written, oral and aural exercises.

21 & 22. *Intermediate German* *6 credits*
Reading from modern authors of moderate difficulty. Oral and written exercises. Systematic review of German grammar. Prerequisite: See general introduction.

101 & 102. *Advanced German* *6 credits*
Selected texts in prose and poetry. Advanced practice in conversation and composition.

103 & 104. *Scientific German* *6 credits*
The aim of this course is to give the preprofessional and science student a general, well rounded knowledge of Scientific German. Readings are selected from the fields of Physiology, Botany, Zoology, Chemistry and Physics, and take on the aspect of a survey of general science, thus preparing the student directly for further work in German in his own particular field.

105. *The German "Novelle"* *3 credits*
Extensive reading. Emphasis on literary appreciation of this form.

106. *The German Classics* *3 credits*
Readings from Goethe and Schiller; an understanding of their position in world literature.

107. *History of German Literature* *3 credits*
Study of the history of German literature, accompanied by selected readings of significant German writers.

Spanish

1 & 2. *Elementary Spanish* *6 credits*
Aim: solid foundation in grammatical principles and mastery of a basic vocabulary. The course includes intensive drill in pronunciation, active use of vocabulary and grammatical principles in written and oral exercises, graded readings. Prerequisite: see general introduction.

21 & 22. *Intermediate Spanish* *6 credits*
Aim: increased facility in active use of basic grammar and vocabulary, enlarged reading ability, and an introduction to Spanish and Spanish-American civilization. The course includes grammatical review, written and oral composition, reading of selected modern prose of intermediate difficulty. Prerequisite: see general introduction.

101 & 102. *The Modern Novel* *6 credits*
A study of the short story and novel of Spain and Spanish-America in the late 19th and early 20th centuries. Readings in the most important authors, with background lectures on the history of the novel and discussions in Spanish.

103. *Advanced Grammar and Composition* *3 credits*
A grammar review emphasizing advanced topics and the idiomatic use of Spanish in set themes and free compositions, with the aim of developing the ability to write clear and fluent Spanish.

104 & 105. *Commercial Spanish* *6 credits*
A study of vocabulary and forms used in commerce. Practice in writing of letters and other business forms. Reading of Spanish models as a basis for free composition. Oral practice in Spanish.

106 & 107. *The Golden Age* *6 credits*
A study of the development of the novel, with the culmination of all forms in Cervantes; and of the drama, reaching its perfection in Lope de Vega and Calderon. Readings in the major authors.

108. *Conversational Spanish* *3 credits*
A course designed to enable the student to express himself in Spanish with clarity and fluency. Stress placed on pronunciation, idiomatic use of the language, and practice in oral composition. Course conducted in Spanish.

ITALIAN

1. *Elementary Italian* *3 credits*
This course is intended for those who begin Italian in college. Principles of Italian grammar, practice in reading, writing and speaking Italian. Its aim is to enable students to read ordinary Italian with ease and to understand to some extent the spoken language.

2. *Elementary Italian* *3 credits*
Continuation of Italian 1, which is prerequisite to this course.

POLISH

1. *The Polish Language* *3 credits*
Fundamentals of grammar, reading and composition in modern Polish.

2. *The Polish Language* *3 credits*
Continuation of Polish 1, which is prerequisite for this course.

RUSSIAN

1. *Great Russian* *3 credits*
Principles of the grammar of the Great Russian dialect, official language of the U.S.S.R. The new orthography and grammatical modifications introduced

since the Bolshevik revolution will be followed. The object is to obtain a speaking and writing knowledge of standard Russian, with some practice in reading the Russian Classics.

2. *Great Russian* *3 credits*

Continuation of Russian 1, which is prerequisite to this course.

21. *Intermediate Russian* *3 credits*

Selected readings from modern Russian authors and practice in conversation, with the aim to increase facility in vocabulary and idiomatic expression.

DEPARTMENT OF PHILOSOPHY

Fr. Jacklin, S.J., *Chairman*; Fr. Baum, S.J., Fr. McSorley, S.J., Fr. Scott, S.J., Fr. Sponga, S.J.

The program in the field of philosophy is designed to train the student in the art of thinking and to acquaint him with the significant issues which confront him in arriving at a reasoned explanation of the world in general and of man in particular. The method is both critical and constructive. Emphasis is laid on the centrality of theistic and ethical problems. Upon concluding the course the student will have gained an intimate acquaintance with the wisdom of the past and a thorough understanding of the principles and values, which are the enduring foundation of the Christian culture and the civilization of the West.

Students wishing to major in Philosophy must take the Philosophy courses required of all students, and in addition Philosophy 113-114, History of Philosophy; and Psychology 121, Experimental Psychology, for a total of 34 semester hours. Since required courses constitute 24 hours of this major students majoring in Philosophy must carry a second major, fulfilling departmental requirements as listed.

101. *On Knowledge* *4 credits*

A. Logic—This course aims to give the student a brief introduction to the science of philosophy and to train him in the art of correct thinking. Nature and kinds of ideas and terms. Rules for definition and division. Nature and kinds of judgments and propositions. Immediate inference. Reasoning and argumentation: deductive and inductive. Fallacies.

B. Epistemology—treats of the critical basis for the truth of human knowledge. The possibility of valid knowledge. The various sources of certitude: consciousness, sense, intellect, reasoning, testimony. The ultimate nature of certitude and universal criterion of truth—objective evidence.

103. *On First Principles* *4 credits*

A. Metaphysics—considers those concepts, principles, and divisions which are fundamental to reality. The concept of being and its analogy. The first principles and trancendental attributes of being. The primary divisions of being: act and potency, substance and accident. The Aristotelian analysis of the four causes of being.

B. Natural Theology—establishes the existence of God and His relations to the world. The proofs for God's existence. The divine essence and attributes. God as the creator and first cause of the world. God's knowledge and action in relation to the Universe. Prerequisite: Phil. 101.

105. *On Nature* *4 credits*

A. Cosmology considers corporeal being. The common properties and activities of bodies: quantity, space, place, time motion. The essential constitution of bodies: hylomorphism, dynamism and atomism.

B General Psychology—treats of living being. The meaning of life—mechanism and vitalism. The nature of the vital principles in plant and animal life. The origin of life and the problem of Evolution. Prerequisite: Phil. 103.

107. *Rational Psychology* *4 credits*

Animal and human psychology. The intellect and its functions; abstraction, origin of ideas, inference, reasoning. Volition, motivation, the nature of human freedom and responsibility. The conscious and subconscious mind; psychoanalysis; extranormal mental states. The human person; unity, nature, origin and destiny. The psychological grounds of character and personality. Prerequisite: Phil. 105.

110. *Basic Ethics* *4 credits*

Basic ethics studies the morality of human actions in general. Starting with the accepted notions of morals, morality, responsibility, obligation, it develops the true meaning of moral goodness and moral obligation. An analysis of free human actions from the point of view, first, of their finality, secondly, of their relation to the nature of the person, and, thirdly, of their concrete circumstances, leads to an understanding of the essence of moral goodness and malice. The law of nature as applied to rational activity explains the meaning, nature, and extent of moral obligation. These constitute the objective order of morality. The subjective order of morality consists in the application of these objective norms through the practical reason and moral conscience. Prerequisite: Phil. 105.

111 *Special Ethics* *4 credits*

Special ethics applies the general principles of moral conduct to particular problems arising from man's relation to God, to his fellow-man, and to himself,

and from his rights in respect to material possessions. Social morality first establishes the essential sociality of man, then investigates the rights and duties natural to man in the three fundamental forms of human association; the family, the state and religious society. Prerequisite: Phil. 110.

113. *History of Philosophy: Ancient and Medieval* *3 credits*
A survey of the History of Philosophy from its beginnings in the West to its Scholastic flowering in the Middle Ages. The various problems will be seen in their origins and traced through the master philosophers: Socrates, Plato, Aristotle, St. Augustine, St. Thomas Aquinas.

114. *History of Philosophy: Modern and Recent* *3 credits*
The development of modern thought, from Bacon and Descartes, through Spinoza, Leibnitz, Hobbes, Locke, Berkeley and Hume to Kant and Hegel. Neo-Scholasticism and its relation to other contemporary philosophical movements.

DEPARTMENT OF PHYSICS

Dr. Harper, *Chairman*; Mr. McGinnis

The science of Physics is concerned principally with matter and energy, the nature of each, and with their interactions. It is the fundamental science for most branches of engineering and has innumerable applications in medicine, industry and everyday life. The objectives of the Department of Physics are: (1) to impart a body of knowledge of the general principles of Physical Science and to show their applications to human problems; (2) to aid the student in acquiring scientific method and in developing a quantitative frame of mind in dealing with his problems; (3) to train the student in logical and accurate methods of observation, measurement and analysis; (4) to provide the student with adequate training in the fundamentals of Physics to enable him to pursue medical, engineering and other courses of study; (5) to encourage and train those students who show exceptional aptitude for the science of Physics for a career in the teaching of Physics, or in industrial work in this field, and to encourage those students who have the capacity to pursue graduate work in Physics.

1. *General Physics* *4 credits*
A fundamental college course in mechanics and heat. For pre-medical, predental and other students who need one year of college physics. Three hours lecture and recitation and two hours laboratory. Prerequisites: Math 11 & 12.

2. *General Physics* *4 credits*
A continuation of Physics 1, including electricity and magnetism, sound and light. Three hours lecture and recitation and two hours laboratory. Prerequisite: Physics 1.

3. *General Physical Science—Physics* *3 credits*

This is the first part of a general physical science course for the non-science student designed to give an understanding of physical phenomena and the methods of science and to show what contributions the physical sciences have made to human progress. The subjects of measurements and observations, properties and forms of matter, and forms and transformations of energy are treated from the standpoint of physics. Student participation in laboratory exercises and demonstrations will supplement the lecture material. Two hours lecture and two hours laboratory and demonstrations per week.

6. *Practical Radio* *4 credits*

A beginner's course in radio covering the fundamentals of operation, construction, adjustment and testing of radio components such as rectifiers, amplifiers, oscillators, receivers and transmitters. This course gives the student a start in the field of radio and it serves as an introduction to more advanced courses in radio, television and other branches of electronics. High school algebra, trigonometry and physics are recommended prerequisites. A total of five hours classroom and laboratory work per week.

8. *Elementary Photography* *2 credits*

Optical systems of cameras, action of light on photographic emulsions, characteristic curves of emulsions, developers, fixers, intensifiers and reducers. One hour lecture and three hours laboratory. Projects will be designed for individual work in the laboratory. Phys. 2 or 19 recommended.

9. *Electronics* *3 credits*

A descriptive, non-mathematical course treating of the development of the electron theory, the discoveries of electronic phenomena, and the various applications of electronic devices. Three hours lecture with demonstrations.

18. *Technical Physics: Elementary Mechanics* *4 credits*

An elementary treatment of the statics and dynamics of particles and rigid bodies, elastic bodies, hydrostatics and hydrodynamics. For Engineering and Physics students. Three hours lecture and recitation and two hours laboratory. Corequisite: Math. 11.

19. *Technical Physics: Heat, Light and Sound* *4 credits*

Basic treatment of the effects of heat, thermometry, calorimetry, transfer of heat and elementary thermodynamics; periodic motions, vibrating bodies, sound waves and acoustics; photometry, reflection and refraction of light, interference, polarization, color and spectra. For Engineering and Physics students. Three hours lecture and recitation and two hours laboratory. Prerequisites: Physics 18; Math. 11.

20. *Technical Physics: Electricity and Magnetism* *4 credits*
Basic treatment of magnetism, electrostatics, direct currents and circuits, electromagnetic induction, alternating currents and circuits, electrical machines and devices, electromagnetic waves; introductory electronics and atomic physics. For Engineering and Physics students. Three hours lecture and recitation and two hours laboratory. Prerequisites: Physics 18; Math. 12.

21. *Light and Optics* *4 credits*
A second course of light which treats geometrical and physical optics in greater detail than in the elementary courses. The topics include lenses and mirrors, refraction of light at surfaces, dispersion, lens combinations, optical instruments, spectra, interference, diffraction and polarization. The laboratory exercises are to acquaint the student with the handling and use of optical instruments in making optical measurements. Three hours lecture and three hours laboratory. Required of Physics majors. Prerequisites: Physics 19, 20, and Math. 21.

101. *Heat and Thermodynamics* *3 credits*
An intermediate course covering the topics of conduction, convection and radiation, the first and second laws of thermodynamics, entropy, thermodynamic cycles, the steam engine, refrigeration, thermodynamic functions and applications of thermodynamics; practice in the use of steam tables and charts. A brief treatment of kinetic and statistical theory of gases is included. This course is recommended for Physics majors. Three hours lecture and recitation. Prerequisites: Physics 20; Math. 22.

102. *Mechanics* *3 credits*
An introduction to theoretical mechanics which deals with the statics and dynamics of particles and rigid bodies. It covers the topics of motion of bodies in different fields of force, energy relations, theory of potential, center of mass and moments of inertia. This course is recommended for Physics majors. Three hours lecture. Prerequisites: Physics 20; Math. 101.

103. *Mechanics* *3 credits*
A continuation of Physics 102. The topics include special types of motion of bodies, waves in elastic media, hydrostatics and hydrodynamics. This course is recommended for Physics majors. Three hours lecture. Prerequisites: Physics 102; Math. 101 & 102.

104. *Electricity and Magnetism* *4 credits*
A detailed treatment of electrical and magnetic phenomena and theory. The topics include electrostatics, capacitors and dielectrics, direct current circuits and measurements, electromagnetic effects of currents, chemical, thermal and photo-electric effects. This course is required of Physics and Electronic majors. Three hours lecture and two hours laboratory. Prerequisites: Physics 20; Math. 22.

105. *Electricity and Magnetism* *4 credits*

A continuation of Physics 104. The topics include electromagnetic induction, alternating current circuits, machines and measurements; coupled circuits, filters, lines and electromagnetic waves. This course is required of Physics and Electronics majors. Three hours lecture and two hours laboratory. Prerequisites: Physics 104; Math. 101.

106. *Radio Tubes and Circuits* *4 credits*

This course covers the theory of thermionic emission, vacuum tube construction and characteristics, rectifiers, amplifiers, superheterodyne receivers, oscillators, modulators, transmitters and antennae. The accompanying laboratory exercises are devoted to the assembly and testing of radio circuits. This course is for Electronics majors and is recommended for Physics majors. Three hours lecture and two hours laboratory. Prerequisites: Physics 20; Math. 22.

107. *Electronic Circuits* *4 credits*

Systems of modulation and transmission; systems of detection; audio and radio frequency amplifiers; video and special amplifiers; pulse generators and other special electronic circuits. This course is designed for Electronics majors. Three hours lecture and two hours laboratory. Prerequisites: Physics 106; Math. 101.

108. *High Frequency Wave Propagation* *4 credits*

Propagation of waves; transmission lines; waveguides; antennas. For Electronics majors. Three hours lecture and two hours laboratory. Prerequisites: Physics 104, 106, 107; Math. 101, 110.

109. *Ultra High Frequency and Microwave Theory and Circuits* *4 credits*

Ultra High frequency and microwave generators, tubes and circuits; receivers; transmitters; radar systems. For Electronics majors. Three hours lecture and two hours laboratory. Prerequisite: Physics 108.

110. *Modern Physics* *3 credits*

A mathematical treatment of various phases of modern Physics which includes the topics of kinetic theory, electrical discharges in gases, electron theory, atomic structure, atomic spectra, x-rays and other electromagnetic radiations. This course is required of Physics majors. Three hours lecture. Prerequisites: Physics 21, 101, 102 & 105; Math. 101, 102 or 106.

111. *Modern Physics* *3 credits*

A continuation of Physics 110. This course is devoted to the treatment of quantum theory, photoelectricity, radioactivity, nuclear particles, nuclear reactions, induced radioactivity, nuclear instrumentation and cosmic rays. This course is required of Physics majors. Three hours lecture. Prerequisite: Physics 110.

112. *Sound* *3 credits*

An intermediate course which correlates principles and techniques of sound, light, electricity and mechanics. Vibration theory, wave transmission in different media, interference and diffraction and acoustic impedance are some of the topics illustrating this interrelationship. Reflection and absorption of sound waves; reproduction of sound, and loudspeakers. Architectural acoustics. This course is recommended for Physics majors. Three hours lecture. Prerequisites: Physics 20; Math. 101.

113. *Medical Physics* *3 credits*

This course is designed to fill the need of a second course of Physics for medical students. The purpose of this course is to give these students a thorough knowledge of the many applications which are made of physical principles and physical devices in medical practice and research. The course treats the theory and application of various electrical and magnetic devices, optical instruments, electronic devices, x-ray equipment and radioactivity. Three hours lecture. Prerequisites: Physics 2; Math. 12.

114. *Advanced Physics Laboratory* *1 credit*

This course includes experiments, not given in connection with other courses, on the charge and specific charge of the electron, vacuum tube characteristics, photoelectricity and atomic spectra. Required of Senior Physics majors. Prerequisites: Physics 21, 101, 104 & 105.

115. *Advanced Physics Laboratory* *1 credit*

A continuation of Physics 114. The experiments cover thermoelectricity, production and measurement of high vacuum, x-ray absorption and diffraction and radioactivity. Required of Senior Physics majors. Prerequisites: Physics 110 & 114.

120. *Undergraduate Physics Thesis* *1 credit*

For those who apply for the B.S. degree with a major in Physics. This work is to evaluate the student's capacity for individual study and research in connection with a specific physical problem. Assignment of the problem and credit to be arranged in each case. Prerequisites: 30 credits in Physics; 20 credits in Math.

DEPARTMENT OF SOCIAL SCIENCES

Mr. Baldi, *Acting Chairman*: Mr. O'Keefe, Mr. Sheehan

Training in the Social Sciences has several aims: (1) the student receives the general cultural development which helps him to adapt himself better to the various societies of which he is a member; (2) it prepares him to assume a degree of leadership in improving the means employed by these groups in attaining their proper ends. The courses in Social Science are adaptable to the ends of both the terminal and prospective graduate student. A Major in

Sociology shall consist of Soc. 21 and 22, plus 24 elective credits in Sociology. A Major in Economics shall consist of Econ. 23 and 24, plus 24 elective credits in Economics and Business 1-2, 103-104, 105-106. These specific majors are designed to more adequately prepare the student for graduate work in the fields of Sociology, Economics, Labor Relations, and Social Work.

ECONOMICS

23 & 24. *Principles of Economics* — *6 credits*

An introduction to the principles of economic theory and their application to present-day problems. Economic organization of the United States—of consumption, production and marketing, foreign trade, money and credit, prices, foreign exchange, wage theories and the relation of employer and employed, capital and interest, rents, profits, and taxation. The course concludes with a critical examination of modern capitalism and alternative economic systems.

102. *History of Economic Thought* — *3 credits*

This course is a survey of the wide field of economic thought. Particular stress is placed on the economic and socio-political factors of the time. Prerequisite: Econ. 24.

103. *Economic Geography* — *3 credits*

A study of the physical environment which in a large sense sets the stage for all economic activities. Specifically, the influence of climate, land forms and soils and their distribution on the surface of the earth are investigated. Emphasis is placed upon the relation of physical factors and economic conditions to the production and exchange of the world's leading commercial products. The North American, South American and European continents are studied, with emphasis being placed on their relationship to the United States. Prerequisite: Econ. 24.

104. *Economic History* — *3 credits*

The background of European expansion in America. The American Revolution as a social movement. The economic forces that conditioned the development of the United States prior to 1860. The economic bases of Southern Secession and the breakdown of the confederacy. The economic aspects of the reconstruction policy, agriculture and agrarian discontent. The emergence of large scale enterprise and its attendant problems. The development of the United States as a major world power. The economic and social problems of World War I and the post-war period. The great depression, boom and World War II periods and problems of current significance. Prerequisite: Econ. 24

105. *Labor Law and Legislation and Industrial Relations* — *3 credits*

The study of the economic forces which have engendered labor legislation, and a case analysis of the effect of resulting conditions on employer-employee rela-

tions. A survey of the Acts of Congress of the United States and of the legislature of the Commonwealth of Pennsylvania in the field of industrial relations. A discussion of pertinent decisions. The subject matter includes a study of evolution of legislation, the history of industrial disputes and the influence upon labor-management relations in the fields of law, economics, sociology and industrial management. The purpose of this course is to give the student majoring in the social sciences, and in general business, concentrating in management or economics, a comprehensive knowledge of the problems involved, and the possible solutions, in these fields of labor-management relations.
Survey of American Labor Struggles. Summary of the history, theory and evolutions of labor combinations. An analysis of the effects of labor legislation and economic forces in the fields of law, economics, sociology and industrial management as evidenced by Federal and State legislation and court decisions. Early doctrines. Structure and purpose of labor combinations. Labor Injunctions. Lawful and unlawful striking activity. Lawful and unlawful picket activity. The Clayton Act. The Norris-LaGuardia Act. Prerequisite: Econ. 24.

106. *Labor Law and Legislation and Industrial Relations* *3 credits*

The Boycott. Labor and the Sherman Act. The National Labor Relations Act. The Railway Labor Act. Incidents of union membership. State laws. The Fair Labor Standards Act. Prerequisite: Econ. 105.

150. *Labor Problems* *3 credits*

History of labor as a social and economic group; development and philosophy of trade unions; labor legislation; methods of dealing with insecurity and inadequate income; organizational and jurisdictional problems of unions; labor-management relations. Each student will complete a project applying a definite phase of the course to an assigned problem.

Sociology

21. *Basic Sociology* *3 credits*

An introduction to basic sociological principles covering the basis, structure, and functions of society. Man's biological and cultural heritage and his social nature, demography, ecology, types of communities; the social processes of competition, conflict, co-operation, accommodation and stratification and their relationship to social control, the family, economic, governmental and religious institutions.

22. *Social Problems* *3 credits*

An analysis of the major social problems affecting modern society. Consideration is given to such factors as poverty and dependence, physical illness and defectiveness, mental deficiency, mental and emotional illnesses, problems of old age, family breakdown, transiency, housing, crime and delinquency, stand-

ards of living and race problems. Attention will be given to the social legislation bearing on the above, resources for treatment and prevention, and deficiencies in existing programs of both a governmental and voluntary nature.

102. *The Family* — *3 credits*

Sociological role of the family; history of the family; family organization and social control; legal regulation of marriage and the family; religion in the home; eugenics and the family; rural and urban families; trends in marriage and divorce; intermarriage; economic factors in the home; disintegrating factors in family life; foundations of marital happiness; security; co-operation with community agencies.

103. *Criminology and Penology* — *3 credits*

The course will cover the contributions of the Classical, Neo-Classical and Positivist schools of thought to the development of the science of criminology. Consideration will be given to the physical, psychological and environmental factors in crime. The role of the home, family and social relationships will also be evaluated. Special attention will be given to the question of juvenile delinquency.

The methods and instrumentalities of criminal justice such as the police, the criminal and juvenile courts, prisons, probation and parole will also be discussed, as will a program of crime and delinquency prevention.

104. *Social Origins* — *3 credits*

A survey of the present state of knowledge in the field of cultural anthropology. Analysis will be made of the modern primitive cultures for the light they shed on the possible stages in man's cultural acquisitions. The social, economic, religious and political structures and processes in various contemporary primitive societies and the corresponding structures and practices in modern civilization will also be studied.

105. *Sociological Theories* — *3 credits*

A survey of the development of sociological principles beginning with Comte and including a comparison of the modern major schools of thought such as the mechanistic, geographical, demographic, biological, economic, sociologistic and integrative.

106. *Community Organization* — *3 credits*

The course aims at a general introduction to the field and process of community organization, both as a field of social work, and as a field of human endeavor. Stress is laid on the co-ordination and financing of welfare activities, methods of appraising community needs and resources, welfare planning and the initiation of welfare services. Local, state, regional, national and international services of a voluntary and governmental nature will also be discussed.

107. *Child Welfare* *3 credits*

An analysis of the philosophy and development of child welfare in the United States with consideration given to the historical development of the problem in England; consideration is given to the methods in which basic needs for all children are met through educational, health, recreational and child labor regulations. Particular emphasis given to the study and treatment of dependent, neglected, delinquent and illegitimate children in their own homes, foster homes and institutions. The administration of child care and protective programs through private agencies functioning on Federal, State and local level will also be studied. Lectures supplemented by discussion of various aspects by workers in the field.

108. *Communist, Fascist, and Democratic Societies* *3 credits*

A comparative structural analysis of actual and ideal type communistic, fascist, and democratic societies, measured in terms of efficiency, integration, and justice to all peoples directly or indirectly concerned.

109. *The Field of Social Work* *3 credits*

An analysis of the growth of social work as a professional endeavor. The scope of social work: case work in the medical, psychiatric, family and child welfare and guidance field; community organization as exemplified in the community chest and council, social research, social planning, social group work. Evolution of training for social work. Schools of social work, national associations, number of social workers, demand for social workers, salaries. Current trends in social work. Lectures supplemented by discussions of specific areas by workers in the field.

110. *Problems of Marriage and Family Life* *3 credits*

This course is intended to cover the practical problems of every day living encountered in marriage and family living, and as such is not primarily concerned with sociological considerations. While the role of religion in marriage and family living is given due consideration, the course is not intended to adequately cover this relationship. The major focus of attention will be given to the preparation for marriage, selection of a partner, financing the marriage, harmonies and discords in the marriage, problems of parenthood and family administration, family crises and ways of meeting them, and the successful and happy marriage and family union. Restricted to seniors.

111. *Urban Sociology* *3 credits*

A sociological analysis of the development and effects of modern urbanization on human institutions, population trends and social relationships. The external interrelationships, form and structure and organized life in cities, patterns of urban structure and cities of the future will be covered. The role of politics, social agencies and elements making for organization and disorganization will also be discussed.

112. *Methods and Techniques of Social Research* *3 credits*
Ways of obtaining, recording, interpreting, and publishing research materials; the case study, life history, survey, questionnaire, interview, and the use and interpretation of statistical procedures.

DEPARTMENT OF THEOLOGY

Fr. Herlihy, *Chairman*; Fr. Kerr, Fr. Pitts, Fr. Schaffner

The program in theology at the University of Scranton has been organized upon the fundamental principle that theology is something vital, which must be lived as well as understood. It is not intended to train theologians but rather to form thoroughly enlightened and strongly motivated Catholic gentlemen, bent upon attaining their full stature in the Mystical Body of Christ.

1. *The Quadriform Gospel* *2 credits*
The origin and literary type of the Gospels, source books of Christian origins, their historical and religious value. The structure, content and characteristics of each of the four Gospels in its entirety.

2. *The Life of Christ* *2 credits*
The life of Christ and the work He came to accomplish as revealed in a harmony of the Gospels, with commentary. The manifestation of the Divine Person Who is God and Man. Emphasis on His teaching and redemptive missions and His example as a model of Christian personality.

21. *The Organization and the Inner Nature of the Church* *2 credits*
Origins of the Church as depicted in the Gospels, the Acts of the Apostles, and St. Paul's Epistles to the Corinthians, Colossians, Philippians, and Ephesians. Function of the Church as the continuation of the Incarnation of Christ; its constitution, its teaching office, and the sources of its teaching. The inner nature of the Church as the Mystical Body of Christ, and the role of the Holy Spirit, its Soul, as seen in the scriptural sources and the Papal Encyclicals on the Holy Spirit, the Unity of the Church, and the Mystical Body.

22. *Theology of the Incarnation and the Redemption* *2 credits*
The Creation, Elevation, and Fall of Man; the Incarnation and its redemptive purpose studied theologically both from Tradition and Sacred Scripture; Mariology; the Sacrifice of the Cross, and the Sacrifice of the Mass; participation in the priesthood of Christ through Baptism, Confirmation and Holy Orders.

101. *The Theology of the Individual* *2 credits*
Man's progress towards God; Divine Providence; the Indwelling of the Holy Spirit in the just; actual and habitual grace; infused virtues and gifts. The

teaching of St. Paul on justification in the epistles to the Romans and Galatians. The salvific will of God, and the universality of His grace. Predestination. The nature of efficacious grace. The grace of Final Perseverance. Penance, Indulgences, Extreme Unction. The four last things, with emphasis on the Beatific Vision, and its object, the Triune God.

102. *The Spiritual Formation of Laymen, and their Participation in the Apostolate* *2 credits*

Catholic dogmatic truths concerning Christian perfection applied to the life of laymen with the aim of promoting their spiritual life and their participation in Catholic Action:

(1) The nature of Christian perfection and the obligation of striving for it. The theological virtues, especially Christian charity, and its exemplification by Christ; also the moral virtues, and the relation of natural virtues to supernatural. Practical aspects of the theology of the Sacraments of Penance and the Eucharist. The ascetical practice of mortification and penance, techniques for resisting temptations, methods of prayer, the invocation of angels and saints, Catholic devotions.

(2) The Theology of Catholic Action. The modern role of laymen as mediators between the temporal and spiritual orders, consequent on the rise of Liberalism and Secularism. The collaboration of the laity and the clergy in the Apostolate of Christ. The stages of the lay Apostolate, and the practical organization and method of Catholic Action.

110. *The Catholic Philosophy of Religion* *2 credits*

The fact, the universality, the nature, and the origins of Religion. The multiplicity of religions, and of religious errors. The validity of religious knowledge natural and supernatural, and the criteria of supernatural revelation. The evidence for the genuinity, integrity, and historicity of the Gospels, and of the claims of Christ regarding Himself. The continuity of the Roman Catholic Church with the "Primitive" Christian Church, and its development in the organization and doctrine.

111. *Christian Marriage: The Church and the Social Order* *2 credits*

(1) The Divine Institution, the essential properties, and the Sacramentality of Christian Marriage; its blessings (Children—love—holiness). The errors and vices opposed to it. Morals for the married, and the Canon Law of the Church concerning marriage.

(2) The Christian social, economic, and cultural program in the temporal order, chiefly as enunciated in the Papal Encyclicals and other pronouncements on topics such as the family; education; relations between Church and State; ownership, property, labor, security, wages; religious toleration, and interdenominational relations, etc.

INSTITUTE OF INDUSTRIAL RELATIONS

The Institute of Industrial Relations is an autonomous integral part of the University. The history and general aims of the Institute are set forth under General Information.

The classes of the Institute are open to men and women interested in the intricate and specialized field of Industrial Relations. No academic credits are awarded for the courses pursued in the Institute but students who complete a required number of Institute courses are awarded a Certificate of Achievement in Industrial Relations.

Among the courses offered by the Institute are the following:

Basic Economics
Industrial Ethics
Labor Law
Political Parties and Pressure Groups
Parliamentary Procedure
Grievance Procedure
Basic Sociology (The Nature of Society)
Employee Welfare Plans
Causes of Industrial Peace
The Labor Contract
Industrial Psychology
Wages, Prices, Profits
Economic Problems of the Anthracite Region
Collective Bargaining
History and Philosophy of Organized Labor
Effective Writing
Fundamentals of Public Speaking
Argumentation and Debate
International Aspects of Industrial and Labor Relations
Communism, Facism and Democracy
The National Income and Its Distribution
Understanding the American Constitution
The Federal System of Government in the United States
Principles and Practice of Arbitration
Mediation and Conciliation
Statistics and Statistical Methods in Industrial Relations
Speech Analysis

Information regarding the semesters, classes and requirements of the Institute may be had by addressing the Director of the Institute.

Religious Organizations

LEAGUE OF THE SACRED HEART

The League of the Sacred Heart and Apostleship of Prayer is the oldest organization at the University of Scranton; it was founded in 1906 and at that time aggregated to the central office of the League. Membership is open to all Catholic students. The League has for its purpose to foster among its members a sincere devotion to the Sacred Heart and, by the union of its members in prayer, to make reparation for sin and promote the apostolic work of the Church. Regular meetings are held on the first Friday of the month at 8:45 A. M.

Moderator: Reverend Samuel R. Pitts, S.J.

THE SWORDSMEN

The Swordsmen (The Sodality of Our Lady), under the primary title of the Immaculate Conception and with Saint Aloysius as its secondary patron, was founded at the University of Scranton on December 6, 1942, with the approval of the Bishop of Scranton and subsequently aggregated to the Roman Prima Primaria Sodality. Its object is to foster filial devotion to the Mother of Christ and the practice of virtue and piety among its members. The Swordsmen is divided into two groups. The first group is for seniors and juniors. Father Samuel R. Pitts, S.J., is moderator of this section. The second group is for the sophomores and freshmen. The moderator of this section is Father William E. Schaffner, S.J.

They conduct the Annual Mission Bell Dance for the benefit of the Jesuit Missions in India. They sponsor the May Devotions held on the campus. They operate a pamphlet rack. They hold discussions on Mariology in conjunction with Marywood College. They teach catechism in eight parishes around Scranton. They act as promoters of the League of the Sacred Heart and the Apostleship of Prayer. They keep the University informed of the pictures approved by the Legion of Decency.

Moderator: Reverend Samuel R. Pitts, S.J.
Assistant Moderator: Reverend William E. Schaffner, S.J.
Prefect Senior Sodality: Patrick T. Ryan.

College Organizations

PURPOSE

The University of Scranton encourages extracurricular organizations as important factors in collegiate life, developing the social side of a student's character, exercising his abilities and furnishing opportunities for the development of initiative and leadership. These activities are part of the life of the collegiate community and ought to be part of the life of every student. Therefore, every student will be urged to participate in one or more of these activities to the extent that his scholastic standing will permit.

ALPHA SIGMA NU

Alpha Sigma Nu is a National Honor Society with chapters in various Jesuit Colleges and Universities throughout the United States. It is a society organized to honor students who have distinguished themselves in scholarship, service and loyalty to their college. Candidates are drawn from the Junior Class and are nominated by the local chapter, which also certifies the qualifications of the nominees. Those who are approved by the President of the University and the Dean are elected members and initiated into the organization.

Moderator: Reverend Herbert Baum, S.J.

President: Patrick T. Ryan.

ALUMNI SOCIETY

The University Alumni Society has been formed to perpetuate friendships formed at the University, to foster among its members a spirit of loyalty to their Alma Mater and to extend the influence and advance the interests of the University. Regular meetings and reunions are held from time to time as prescribed in the rules and by-laws of the Society.

Honorary President: Right Reverend Monsignor Patrick J. Boland.

President: Mr. James G. Hopkins.

First Vice-President: Attorney James E. O'Brien.

Second Vice-President: Mr. Cyril E. Kane.

Secretary: Mr. John R. Gavigan.

Treasurer: Attorney Robert E. O'Brien.

Executive Secretary: Mr. John R. Gavigan.

THE AQUINAS

The Aquinas is a newspaper published twice a month during the course of the school year by the students of the University. Its purpose is to foster the development of literary expression among the students, to afford a practical training in Journalism and to chronicle the events of University life.

Moderator: Reverend Edward J. Sponga, S.J.
Assistant Moderator: Mr. James F. Coleman, S.J.
Editor: Robert J. Arthur.

ATHLETIC ASSOCIATION

In addition to governing and promoting intercollegiate competition in athletic games the association provides a program of physical training and intramural sports for the student body.

Faculty Manager: Reverend John J. Coniff, S.J.
Coach of Football and Director of Physical Education: Mr. Peter A. Carlesimo.
Coach of Basketball: Mr. Peter A. Carlesimo.
Coach of Baseball: Mr. Raymond J. Roche.

THE ART CLUB

The Art Club affords an opportunity to participate in real art experiences. The students learn the use of the various art media and enjoy a weekly studio period for the production of original works. Appreciation of the artistic endeavor of today is acquired through visits to museums and through the sponsoring of art exhibitions at periodic intervals.

Moderator: Mr. Lawrence A. Mann.
President: Donald E. Duffy.

THE UNIVERSITY BAND

The University Band is open to any student with an aptitude for music. The band plays at many of the athletic contests, various University exercises and gives an annual concert. Active

members in the band are eligible for the school letter after one year and the gold award after two years.

Moderator: Reverend Bernard L. McConnell, S.J.
Assistant Moderator: Mr. Francis C. O'Connor, S.J.
Director: Mr. Mario Chemi
President: P. Lawrence Homer.

BIOLOGY CLUB

Junior and Senior students who are majoring in Biology may, by the demonstration of interest and proficiency in the subject, become members of the Biology Club. This organization enables the students more intensely interested in the biological sciences to further their own education especially in the fields which are not covered in classroom work. The members meet every second week for student discussion of current biological topics and, in addition, engage in various projects for the benefit of the department, the school and the community.

Moderator: Dr. Leonard Wolf.
President: Gerald P. Hogan.

THE BUSINESS CLUB

The University of Scranton Business Club is an organization composed of graduates and students of the University who are interested in Business Administration and Accounting. The object of this club is to give the business student closer contacts with actual business practices and to acquaint him personally with both local and national business executives and firms.

Meetings are held each week in the Business Building and each month a dinner meeting is held at which prominent guest speakers from the fields of business and economics are presented to the club. Field trips to local and distant industries are another activity of this organization.

Moderator: Mr. John P. McLean.
President: Michael Cherewka.

UNIVERSITY OF SCRANTON CHAPTER
STUDENT AFFILIATES, AMERICAN CHEMICAL SOCIETY

To keep abreast of developments and improve their perspective in the ever-growing field of chemistry, undergraduates in the

chemistry major curriculum became affiliated with the American Chemical Society, a national professional organization, thereby gaining recognition collectively as the University of Scranton Chapter of Student Affiliates.

Objectives of the organization are: to encourage in the broadest and most liberal manner the advancement of chemistry in all branches; to promote research in chemical science and industry; the improvement of the qualifications and usefulness of chemists through high standards of professional ethics, education and attainments; the increase and diffusion of chemical knowledge; and by its meetings, professional contacts, and reports to promote scientific interests and inquiry.

Moderator: Mr. Francis C. Witkoski.

Chairman: Bert Phillips.

COUNCIL OF DEBATE

The University of Scranton Council of Debate offers its members the opportunity to train themselves in public speech and informal debate. Besides the regular weekly debate at the University, the debaters present a program each Thursday over Station WQAN, in which they discuss topics of vital interest to the world. Other activities of the Council of Debate are intercollegiate debates and the annual oratorical contest. The Council is a member of the NFCCS and the National Forensic Commission.

Moderator: Mr. James F. Coleman, S.J.

President: Patrick T. Ryan.

DEUTSCHER KREIS

The Deutscher Kreis is open to all students at the University who are particularly interested in increasing their proficiency in the use of the German language and in acquiring a better understanding of the culture and civilization of the people whose language they are studying.

THE ECONOMICS CLUB

This organization restricts its membership to students who are majoring in Economics. Its objective is to promote interest in

economic theory and problems by providing the opportunity for discussion groups to function most profitably. In addition, the group plans to sponsor field trips and to conduct economic research projects of general as well as of local interest.

Moderator: Mr. Thomas Sheehan.
President: Peter J. O'Donnell.

LE CERCLE FRANCAIS

Le Cercle Francais is open to all students of the University who are particularly interested in increasing their proficiency in the use of French language and in acquiring a better understanding of the culture and civilization of the people whose language they are studying.

The club activities stress the importance of French culture in the development of modern society. Weekly meetings conducted in French are devoted to discussions of various phases of French civilization and literature. The Cercle encourages the exchange of letters with French and Canadian correspondents, thereby cementing friendly relationship between countries. The Cercle also sponsors occasional guest speakers.

Moderator: Mr. John F. McKenna.
President: Eugene J. Sabol.

THE GREEK CLUB

The Greek Club is an academic organization open to all the students of the University. Its purpose is to acquaint its members with various phases of Greek culture in their relationship to present-day civilization. The club affords a fine opportunity of supplementing one's education with a study of the rich culture of ancient Greece, the cradle of Western civilization.

Moderator: Mr. James F. Coleman, S.J.

INTERNATIONAL RELATIONS CLUB

The International Relations Club was founded in 1938 in order to promote a more intensive study of international problems and to gain a clearer understanding of international relations. Open forum discussions are held twice each month and occasional

radio broadcasts are given by members of the forum. Joint meetings with the Marywood International Relations Club are held periodically. The forum is affiliated with the international relations clubs of the Carnegie Foundation for International Peace.

Moderator: Dr. Clarence C. Walton.

President: John M. Loncola.

THE LOYOLANS

The Spanish Club is an organization composed of students of the University who are interested in the study of Spanish. The objectives of the club are to acquaint the members with the written and spoken language and to study the life, literature and culture of the Spanish-speaking countries.

Meetings are held monthly in the Arts Building. Several social gatherings are held during the scholastic year. The annual Spanish Fiesta is the organization's outstanding social event of the year.

Moderator: Mr. Frank A. Cimini.

President: John E. Coyne.

THE OUT-OF-TOWN CLUB

Founded in 1947, this club is designed to aid the student from out of town in supplementing the regular extracurricular activities at the University with special programs of an intellectual, artistic or social nature to meet his special needs.

Moderator: Reverend William E. Schaffner, S.J.

President: David A. Burger.

THE PHYSICS CLUB

The Physics Club is primarily an organization for those students who are majoring in the science of Physics. The membership is also open to those who are studying Physics and wish to extend their understanding of this science. The purpose of the Physics Club is to afford the members opportunities to become more familiar with the activities of physicists, the applications of physical principles and the outstanding developments in the field of physics.

Moderator: Dr. Joseph P. Harper.

President: V. Robert Stull.

UNIVERSITY PLAYERS

The Undergraduate Dramatic Society of the University of Scranton is the University Players, under whose sponsorship the program of University Dramatic Productions on stage and radio is presented. Membership in the University Players is restricted to students who have taken active part in the annual productions on stage and radio. Freshmen serve as apprentice members during their first year. Actual participation in the program of productions, however, is not limited exclusively to members of the University Players, but is open to all students of the University Day and Evening classes. Meetings of the University Players are held twice monthly and consist of a planned program of lectures and discussions on playwriting, stagecraft, production and design.

Moderator: Reverend Richard F. Grady, S.J.

President: Thomas J. Lavelle.

POLITICAL SCIENCE CLUB

The Political Science Club is composed of students who are actively interested in the nature, functions and problems of our American government. It conducts seminars and debates on current issues and runs model legislatures, both state and national. The emphasis is on active student initiative and participation on projects that are real issues for the country at large.

The club is affiliated with the Intercollegiate Conference on Government which is composed of representatives from all the major institutions of higher learning in the Commonwealth of Pennsylvania. Each year the Conference sponsors a meeting of all its units, usually in Harrisburg, where the students simulate model legislatures, model constitutional or nominating conventions, or model United Nations Assembly. In addition radio forums and joint meetings with other northeastern colleges are sponsored by the club.

Moderator: Dr. Clarence C. Walton.

President: John J. McHale.

THE UNIVERSITY SINGERS

The University Singers affords students with sufficient vocal talent an opportunity to develop this talent with practice in choral singing. During the year the University Singers appear in connection with various University exercises and give occasional concerts. Active members in the Glee Club are eligible for the school letter after one year and the gold award after two years.

Moderator: Reverend Bernard J. McConnell, S.J.
Assistant Moderator: Mr. Francis C. O'Connor, S.J.
Director: Norbert K. Betti.
President: Joseph A. Barrett.

SOCIAL SCIENCE CLUB

The purpose of this organization is to afford students an opportunity to participate in recreational and group activities with institutionalized children and adults; to perform sociological research of benefit to the community; to broaden the student's training in the social sciences.

Moderator: Mr. John J. Baldi.
President: Frank X. Schneck.

STUDENT COUNCIL

The management of extracurricular and social activities at the University is placed in the hands of the Student Council. The range of its duties includes the preparation of the social calendar, the running of assemblies, the supervision of elections, the initiation and promotion of all kinds of student endeavor and the observance of college traditions.

The Student Council is composed of the President of the student body, the class presidents, a representative of each extracurricular activity, a moderator and an assistant moderator. Regular weekly meetings are held for the conduct of ordinary business.

The Student Council is a member of the National Federation of Catholic College Students and the National Student Association.

Moderator: Mr. Lawrence J. Hunt, S.J.
Assistant Moderator: Mr. Frank C. Brown.
President: Patrick T. Ryan.

THE WINDHOVER

The Windhover is the annual Year Book publication of the students of the University. Its aim is to serve as a record of the school year and as a memorial of the Senior Class.

Moderator: Reverend Frederick D. Scott, S.J.

Assistant Moderator: Mr. James F. Coleman, S.J.

Editor: Edwin J. Racht.

THE RADIO GUILD

The University of Scranton operates its own non-commercial educational FM broadcast station, WUSV, located in the radio studios of WQAN in the Scranton Times Building. The radio station broadcasts a three and one-half hour program daily.

The technical and production details incident to the operation of a typical radio station are handled by the students under faculty direction.

The studio is equipped with control desk, including two three-speed record players, three tape recorders, sound effects, record transcription library, auxiliary amplifiers, microphones and play-back equipment. WUSV is a member of the National Association of Educational Broadcasters and a regular subscriber to the Tape-Transcription Network of the Association. The radio station is the focal center of the student organization, The Radio Guild.

Moderator: Reverend Richard F. Grady, S.J.

Student Manager: Frank T. Hummler.

Scholarships

Among the many needs of the University none is of more importance than the foundation of scholarships to meet the increasing number of requests from students of exceptional ability, who without financial aid are unable to secure the advantages of a college education. To found a full scholarship requires the sum of $15,000; partial scholarships can also be established by smaller gifts. Each scholarship will bear and perpetuate the name of the donor or the person designated by him. All scholarships, full or partial, are accepted with the understanding that the income from the sum will be the amount applicable to the holder of the scholarship.

The student in possession of a scholarship will be required to maintain an average of 1.5 and observe the scholastic and disciplinary regulation of the University. Failure to do so entails forfeiture of the scholarship. Students holding a partial scholarship will pay the amounts their scholarships fall short of the full tuition. Books, fees and other incidental expenses are not included in any scholarship. The following scholarships are available:

COMPETITIVE SCHOLARSHIPS

The University of Scranton offers nine (9) scholarships to senior male students of highest ability and achievement. These scholarships are valued at $6000 and are awarded on the basis of the secondary school record, the Principal's recommendations and on the results of competitive examinations given in the spring semester under the following plan:

A. For the initial screening of all competitors a single test of scholastic aptitude will be given in the various high schools. This examination requires no special preparation. It is approximately one hour in length and is a test of linguistic and quantitative aptitude. On the basis of these test scores the fifty highest-ranking students are determined.

B. The fifty students selected under part A are given a general achievement test battery for final selection. Finalists are determined on the basis of the nine highest aggregate scores on this battery.

Announcement of the winners is made as soon as possible after the completion of testing and the nine scholarships are distributed as follows:

First Award: A three year scholarship.....$500 per year
Second Award: A two year scholarship..... 500 per year
Balance: Seven one year scholarships..... 500 per year

The recipients may matriculate in any succeeding term as candidates for a degree. The continuation of the scholarships is contingent upon maintenance of a 1.5 average.

Interested students from schools not visited by scholarship representative may obtain further details from the Registrar.

PURPLE CLUB SCHOLARSHIPS

A number of scholarships of the value of $250 each are annually awarded by the Purple Club. The Board of Directors of the Purple Club selects the students to whom these scholarships are awarded.

GIFTS AND BEQUESTS

Gifts to the University may take the form of funds for the establishment of scholarships or professorships; or the foundation of medals and other prizes; of additions to the material equipment; of collections of educational value; of contributions to the general fund, or may be undesignated. Those desiring to make a bequest to the University of Scranton may be helped by the following suggested form:

FORM OF BEQUEST

I give (devise) and bequeath to the University of Scranton, an institution incorporated under the laws of the Commonwealth of Pennsylvania and located in Scranton, Pennsylvania, and its successors forever the sum of..... ....dollars (or otherwise describe the gift) for its general corporate purposes (or name a particular corporate purpose).

Evening and Summer Sessions

The University offers the use of its facilities to adult groups who are unable to attend the regular day sessions but who wish either to complete studies for a degree or to broaden and refresh their acquaintance with various fields of knowledge without seeking a degree. To meet their needs courses of study are conducted during the summer and in the evening from 6:30 to 10:00 o'clock. The courses which are offered are taught by members of the University faculty; and the instruction which is given will be the same standard as the courses offered during the regular day sessions.

A candidate for the degree of Bachelor of Arts or Bachelor of Science in the evening and summer sessions must satisfy the requirements for admission and the same standards of scholarship as the students in the day sessions. The curriculum for a degree comprises one hundred and twenty-eight semester hours of college studies, of which thirty-two at least must be completed in regular course at the University.

Each candidate is obliged to complete at least one year of residence prior to the final examination for the degree: a residential year supposes the completion of a minimum of thirty-two semester hours at the University. Students working for a degree are required to follow the prescribed sequence in certain courses, and must have their program of studies for each year approved by the Dean. Teachers in service may earn a maximum of six credit hours per semester in the evening sessions. All students who intend to do practice teaching must notify the Director of Practice Teaching at least three months prior to the practice teaching period.

The Summer Session courses will run for eight weeks; the lecture and laboratory work will be so arranged that credit for one semester's work may be given in the courses taken. Students, at the discretion of the Dean, may be permitted to pursue courses in the Summer Session for the purpose of obtaining advanced standing. Students who are delinquent in any course are required to attend the summer sessions to make up their deficiencies.

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UNIVERSITY OF SCRANTON

JUNE FIRST
NINETEEN HUNDRED FIFTY-TWO

PROGRAM

PROCESSIONAL—Algerienne March, op. 60 ..... *Saint Saens*

STAR SPANGLED BANNER ..... Audience

INVOCATION—Veni Creator ..... The Graduates

PRESIDENT'S ADDRESS....The Very Reverend J. Eugene Gallery, S.J.

OVERTURE—Phedre ..... *Massenet*

CONFERRING OF DEGREES

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Author and Playwright

APOSTOLIC BENEDICTION

His Excellency, The Most Reverend William J. Hafey, D.D.
Bishop of Scranton

RECESSIONAL—Stars and Stripes ..... *Sousa*

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Summa cum laude

GRADUATED WITH HONORS

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Earl William Besecker, B.S. ..... *Magna cum laude*
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